



# TruVision NVR 20 User Manual

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# Chapter 1

# TVN 20 System Basics

## Introduction

The TruVision NVR 20 (TVN 20) is a network video recorder capable of recording video from up to 16 IP cameras (depending on the specific model). The TruVision NVR 20 can be configured with one, two, four, or eight SATA disks (storing 2 TB each).

This manual is divided into two primary sections:

- TVN 20 System Basics
- TVN 20 Advanced Topics

**System Basics** identifies the most common operational elements needed to properly set up the unit for everyday needs.

**Advanced Topics** provides additional detail on system features not covered in detail under System Basics.

## Package Contents

The package contains:

- The TruVision NVR 20
- Separately packaged Hard Drives  
**Note:** Depending on the model, there may be 1, 2, 4, or 8 hard drives configured on your system.
- AC Power Cord (USA: USA Power Cord; EMEA: Europe Mainland and UK Power Cords)
- Plastic Bag with Terminal Blocks for alarm input/output connectors
- Quick Start Guide
- IP Camera Compatibility Document

- WEEE Compliance Declaration
- Battery Declaration Document
- TruVision NVR 20 Product Documentation CD which contains:
  - Capacity and Storage Calculator
  - IP Camera Compatibility Document
  - TruVision Device Finder
- TruVision Navigator Version 4.x Software CD

Optional:

- TVR-RK1

## **Installation Environment**

Refer to the user manual for detailed information, but observe these important requirements:

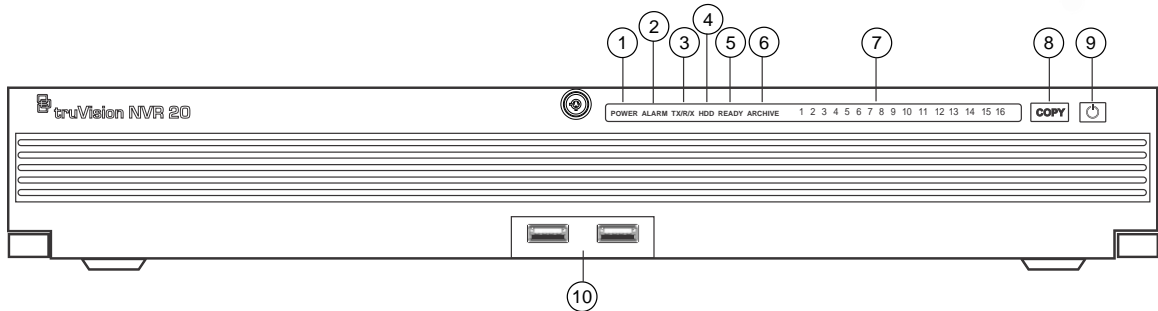
1. Place the TVN 20 in a secure location.
2. Ensure that the TVN 20 is in a well-ventilated area.
3. Do not expose the unit to rain or moisture.

The normal expectation is that this will be mounted in a 19" equipment rack as users cannot access the unit directly to view live or playback video. Rack ears are provided and are suitable to mount the unit without any additional support.



# The TVN 20 – Front Panel

**Figure 1: The TVN front panel**



**Table 1: Front Panel Elements**

No	Element	Description	LED Status Light
1	Power LED	Shows that unit is powered	Color = Normal
2	Alarm LED	Shows if there are any alerts	RED = Fault OFF = Normal
3	TX/RX LED	Shows unit is communicating across the network	Blue Flashing
4	HDD LED	Show read/write activity to the HDDs	Red Flashing
5	READY	Shows that the unit is full ready to function	Blue = Normal
6	ARCHIVE	Shows the status of the archive to USB operation. A buzzer alarm will sound if an incompatible USB device is detected.	Blue = Archiving
7	Channel LEDs	Shows the connected status of IP cameras to the TVN 20, also provides indication of the record mode of channel	View or Scheduled Record (No Event) = Blue Event + View (no record) = Red View or Event + Record = Purple
8	COPY Button	When a USB Drive is connected to the USB Port on the front of unit, pressing the COPY button initiates archiving the most recent video to the USB drive	Archive LED glows BLUE during operation
9	POWER Button	Pressing this button for 3 seconds allows for a controlled shutdown of the unit	N/A
10	USB 2.0 Ports (2)	Used by the Copy button or via Remote Backup managed through the Browser	N/A

# The TVN 20 – Back Panel

Figure 2: The TVN back panel

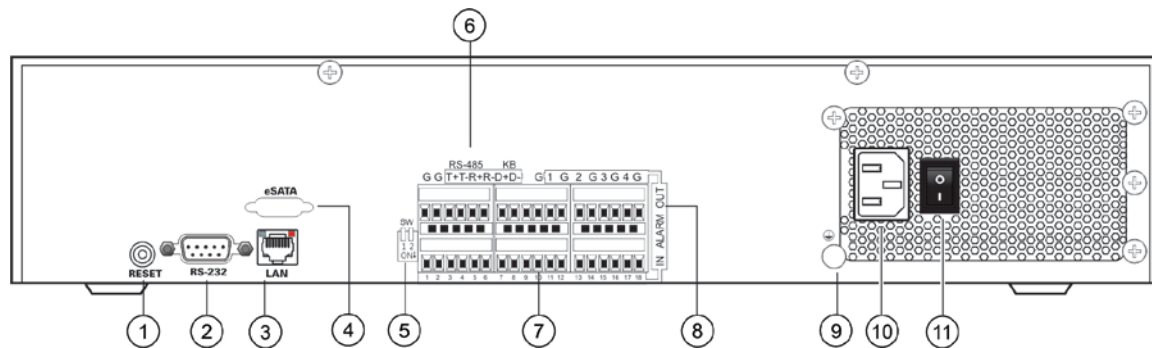


Table 2: Back Panel Elements

Item.	Name	Description
1	Reset	Resets unit to factory defaults
2	RS-232	Used for connecting PC for troubleshooting
3	LAN	10/100/1000Mbps UTP Ethernet interface
4	eSATA	For future use
5	RS-485 Switch	For future use
6	RS-485 Connectors	For future use
7	Alarm In	16 alarm inputs (NO/NC)
8	Alarm Out	4 relay outputs
9	GND	Grounding point
10	POWER Plug	Connection for power cord
11	Power Switch	Power On/Off (use the Power Button on front of unit to turn power off to the unit.)

# Setting up the TVN 20

## Installing the Hard Drives

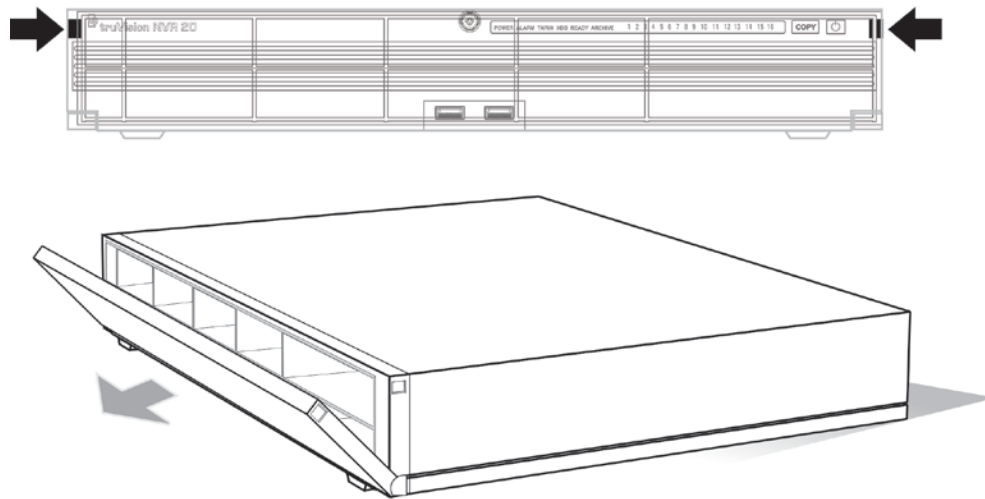
**Caution:** Do not insert or remove drives with the TVN 20 powered on.

**Note:** This unit contains electrostatic-sensitive components. Before handling the hard drives, make sure you are properly grounded to avoid ESD damage.

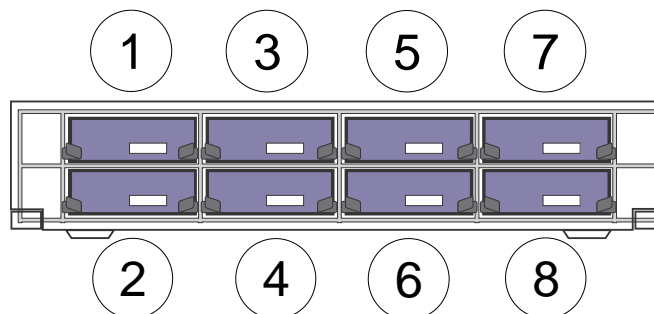
1. Unpack the TVN 20 box.
2. Unpack the TVN 20 HDD box.

**Note:** HDDs in the shipping box are pre-mounted with their rail kits/caddy.

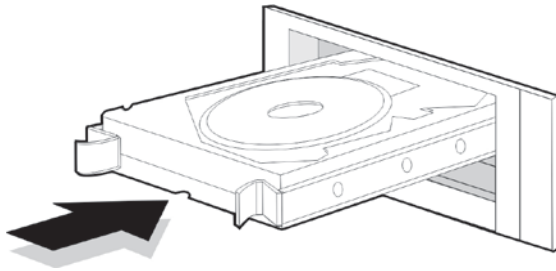
3. Use the key provided in the accessories box to unlock the front panel.
4. Press the latches on both sides of the front panel to open it.



5. Install the hard drives per the schematic below. The first drive in position number 1, the second in position number 2, and so on. Continue to install all the hard drives in numerical order.



6. Insert a Hard Drive into one of the hard drive bays until it has fully seated into position. Repeat with the rest of the hard drives.



7. Close and re-lock the front panel.

**Note:** The Hard Drives must be installed BEFORE powering on the unit. The drives are defaulted to a single HDD group that is automatically ready to record once IP cameras are added and configured with recording schedules.

## Physical Installation of the TVN 20

1. Mount the unit on a shelf or in a 19" Rack (with attached rack ears) in a suitably ventilated temperature controlled environment.
2. Connect the TVN 20 to your network with an Ethernet cable.
3. Connect the power cord and turn the power on.

## Setting up the TVN 20 - Introduction

The TVN 20's initial configuration should be completed using the TVN 20 Browser. This manual will show you the steps necessary to quickly configure a fully operational recording solution.

Configuring a TVN 20 system requires:

1. Giving the TVN 20 an appropriate IP address with the TruVision Device Finder tool.
2. Adding IP Cameras to the unit.
3. Configure the IP cameras.
  - Depending on the model of IP camera, some IP Cameras may be fully configured by the TVN Browser or in the case of 3<sup>rd</sup> Party IP cameras it may be necessary to access the IP Cameras internal web page.
  - The majority of Interlogix brand cameras allow the unit to set video streaming parameters of the IP Cameras.
4. Define the recording schedule for the IP Cameras. The recording modes supported on the unit are:
  - Schedule Recording

- Motion Recording (IP Camera's internal activity detection)
  - Alarm Input Recording
    - The unit has 16 alarm inputs that can be used to trigger recording of one or more connected IP Cameras.
    - Some IP Camera models allow the IP Cameras internal alarm input to trigger recording on the TVN 20.(Please refer to the IP Camera Compatibility Document for a complete listing of what capabilities are supported for each IP Camera type).
5. Define any alarm output behaviors, local unit audible alerts, local-unit relay outputs (4) as well as notifications to Interlogix's TruVision Navigator video management software.
  6. All hard drives are pre-configured into a single recording group and allow all connected cameras to record the same duration of video across all cameras (i.e., all cameras will record for the same number of days)
    - The browser allows for configuring specialized recording behaviors such as duplicate IP Camera recording (Redundancy). Please see the **HDD Configuration & Management** section for additional information.

Configuration of the TVN 20 is optimized for out of the box operation. All IP cameras added are defaulted to record continuously. All system events HDD failure, video loss etc. are set to report to the TruVision Navigator software once the address of the TruVision Navigator server is configured.

## Minimum PC requirements for the Browser

The minimum hardware requirements for the Browser are:

Basic User Operation	Power User Operation
<ul style="list-style-type: none"> <li>• Live view in 9-Up with 4CIF/VGA Camera OR</li> <li>• Live view in 4-Up with up to 2.0 MpX Camera</li> </ul>	<ul style="list-style-type: none"> <li>• Live view in 9-Up or higher with MpX Cameras</li> </ul>
<ul style="list-style-type: none"> <li>• Intel E6550 Dual Core class Processor at 2.33 Ghz (4MB Cache)</li> <li>• 1GB RAM</li> <li>• HD Video Card with 256 MB</li> </ul>	<ul style="list-style-type: none"> <li>• Intel Core I5 750 Quad Core class Processor at 2.66 Ghz (8MB Cache)</li> <li>• 4GB RAM</li> <li>• HD Video Card with 1GB</li> </ul>
<ul style="list-style-type: none"> <li>▪ Minimum 1.5GB HDD Space for any saved video files</li> <li>▪ Keyboard, Monitor, Mouse</li> <li>▪ Windows XP, Windows 2000, Windows Vista, Windows 7</li> <li>▪ Internet Explorer 6.0, 7.0, 8.0</li> </ul>	

The TVN 20 has specific capabilities with respect to the number and mix of IP Camera types. The camera types are:

- 4CIF/VGA resolution capable IP Cameras

- 1.3 Megapixel resolution capable IP Cameras
- 2.0 Megapixel resolution capable IP Cameras
- 3.0 Megapixel resolution capable IP Cameras
- 5.0 Megapixel resolution capable IP Cameras

In addition, the TVN 20 supports a variety of IP Cameras from different manufacturers.

**Important Note:** Not all IP Cameras will have the same level of feature support. These limitations often are limited by the different IP cameras and the protocol they support.

The appendices at the end of this manual includes specific information on TVN 20 technical specifications as well as specific information concerning the unit's IP camera capacities and IP camera feature capabilities.

## IP Device Auto-Discovery Tools

The TVN 20 can automatically “discover” a number of IP Cameras (different makes and models) on a network. The TVN 20 can only discover devices that are on the same network as the TVN 20.

For example, if the TVN 20 is on a network with an IP address of 192.168.1.82 with a subnet mask of 255.255.255.0, then the only IP cameras it can find will be in the range of 1 to 255 of the last octet.

Interlogix and other IP camera manufacturer's provide auto-discovery tools that make it easy to change the default IP address to conform to your network addressing needs. It is strongly recommended you use these tools to quickly identify and modify your IP device address needs.

Interlogix devices that support auto-discovery can be identified on the network using the TruVision Device Finder. This simple tool allows you to view and modify the IP address of any TruVision supported devices. This tool is included on the TVN 20 Resource Disk included with your product. An introduction to the tool is available in the Appendix (see page 3).

## Understanding the TVN 20 Browser

The TVN 20 browser page utilizes Windows ActiveX controls on the Client PC and delivers expected performance using Windows Internet Explorer 6.0 and above.

**Figure 3: The TVN 20 Browser Interface**



When you launch Internet Explorer, you will be prompted to install Active X controls. Please accept all prompts to load these drivers to ensure proper behavior and operation of the web pages supporting the TVN 20. Once installed you may login.

### **Default Login Username and Password**

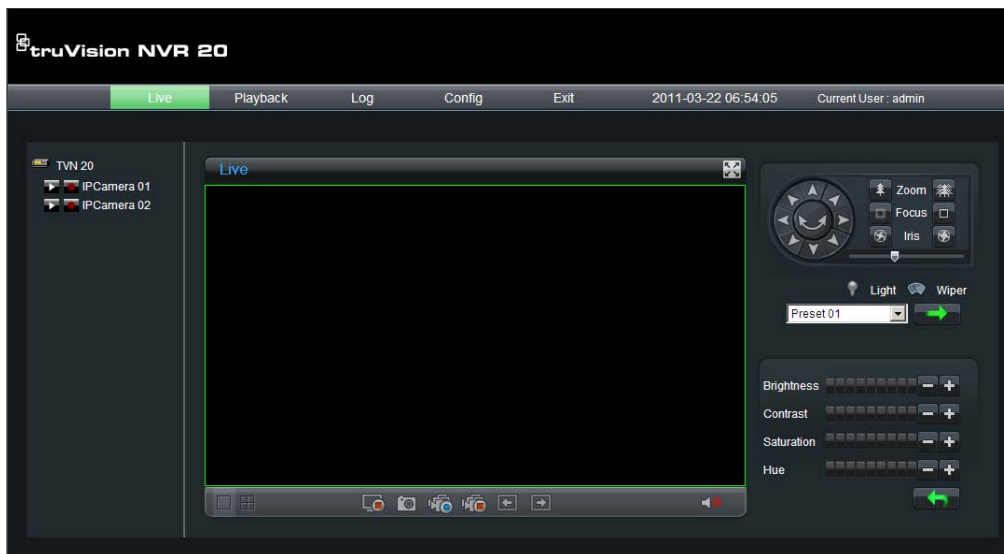
- User Name = **admin**
- Password = **1234**

### **Initial Connection Page**

From this page you can:

- View live video
- View playback video
- Save snapshots of images to your local PC
- Download video clips to your local PC
- Launch the Configuration pages that allow you to configure the device, connection to IP cameras and event response behaviors (from alarm events or device system alerts).
- Open TVN 20 searchable system and event logs.

Figure 4: Initial connection page



Alternatively, using Interlogix's TruVision Navigator video management software the user can view and respond to events from multiple TVN 20s or a mixture of Interlogix TruVision DVRs and NVRs.

**Note:** PTZ and Brightness/Contrast controls are only available on specific TruVision models of IP cameras.

### Initial Config Tab Window

From this page you can quickly add IP cameras, configure recording schedules, enable motion-only recording modes as well as define the behavior of various alarm inputs and outputs on the unit. Additionally the browser allows customization of system events affecting hard drive status, video loss, and more.

Configuration on the TVN 20 is optimized for quick connection to Interlogix's TruVision Navigator video management software.

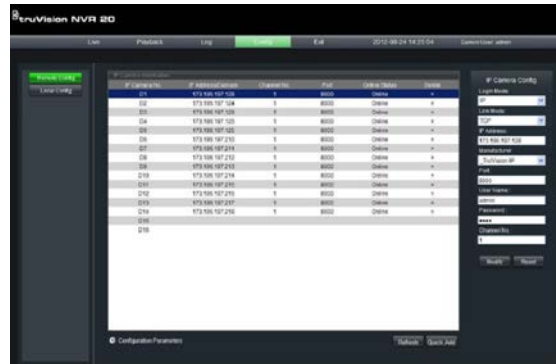
There are two main configuration elements:

**Remote Config** – is the primary area where all IP camera functions are scheduled and managed.

**Local Config** – this controls how users who only use the TVN 20 browser for system operation may define where snapshots, video download and local recording on the Browser's PC are managed.



Figure 5: Initial Config tab window



The default view is the **Remote Config** view providing immediate access to configure your IP cameras into the TVN 20.

This view shows the connected IP cameras connected to the unit. If this is the first time, no cameras are populated.

### Window features:

- Connected Camera summary detail
  - D1-D16 are the available IP video channels which can be used with supported IP cameras and supported encoders (depending on the model ordered).
  - The IP Addresses and port numbers of the connected cameras.
  - Select the actual D1-D16 label to view additional detail on the camera in the panel on the right. You can also click on this label to manually add an IP Camera.
  - Once cameras are added, by clicking in the main line of the camera, you will launch the web page of the specific IP Camera.
  - The Refresh button will notify you when the camera is Online upon initial IP Camera connection.
  - Link Mode will display the default connection method (TCP or UDP) for the IP Cameras.
- The panel on the right is used to view the details of a selected camera from the main list or for selecting an IP Camera channel in order to add manually a specific camera.
- **Quick Add** is a button that will automatically find and allow the user to add in the desired IP cameras with default settings. This works for camera models that support Auto-Discovery.
- **Configuration parameters** is the path to customizing system recording, event management and health monitoring behaviors.

# Configuring the TVN 20

Using a PC running Windows Internet Explorer Version 6.0 or above, enter the unit's default IP address into the address bar and load the web page. The unit's default IP address is: **192.168.1.82**. Login using the default username and password.

- Default User Name = admin
- Default Password = 1234

## Step 1: Set the IP Address for the TVN 20

**Note:** Before configuring the Network Settings, please contact your IT Administrator to confirm the desired settings for your network.

- Select **Config** along the top feature bar.
- Select **Configuration parameters** from the lower right side of the screen.
- From the folder menu under **Network Parameters** select **Network Settings**.

Figure 6: Network Settings

The screenshot shows the 'Remote setting' window with the 'Network Settings' tab selected. The left sidebar lists various configuration categories, with 'Network Parameters' expanded and 'Network Settings' selected. The main area contains fields for NIC Type (10M/100M/1000M Auto), Device IP Address (173.196.197.111), Device Port (8000), Subnet Mask (255.255.255.0), Default Gateway (173.196.197.1), MAC (00:40:30:47:b5:03), Multicast (0.0.0.0), and HTTP Port (80). There are buttons for 'Default', 'Reboot', 'Save', 'Cancel', and 'Advanced'.

- The NIC Type should be defaulted 10M/100M/1000M Auto.
- Under Device IP Address enter the desired IP address.
- The TVN 20 default Device Port should be set at **8000**.

- Typical Subnet Mask will be 255.255.255.0 (default).
- The Default Gateway IP address usually can be set to the same as the IP address except for the last device entry which is usually set to 1.
- The HTTP Port should remain at the default setting of **80**.

**Figure 7: Advanced Network Setting**

The screenshot shows a window titled "Advanced" with a close button in the top right corner. Inside the window, the text "Advanced Network Settings" is displayed. Below this, there are five rows of settings, each with a label and a text input field:

- DNS Server Address1: 0 . 0 . 0 . 0
- DNS Server Address2: 0 . 0 . 0 . 0
- Alarm host IP: 0 . 0 . 0 . 0
- Alarm host port: 5001
- MTU: 1500

To the right of the MTU field is the word "Byte". At the bottom of the window are two buttons: "OK" and "Cancel".

- Click the **Advance** button to confirm the following settings:
  - MTU is set to **1500**

**Note:** If Interlogix TruVision Navigator software is to be used, please ensure the following entries are completed:

- Alarm Host IP is set to the TruVision Navigator Software Server IP.
- Alarm host port is set to **5001**.
- Click **OK** to return to the main Network Settings page.
- Click **SAVE** to save and apply these settings. The Browser will notify you that the TVN 20 needs to reboot. Select **OK**.

If Multicast, DHCP, DNS Servers or specific MTU packet size are to be utilized for your network, please contact your local IT Administrator. These settings can be accessed via the **Advanced** button.

## Step 2: Set Video Format for the TVN 20

Although we are dealing with IP video, to ensure the browser display delivers the correct image size it is necessary to set whether the video format for your region is NTSC or PAL.

- Click **Configuration parameters** on the lower right hand side of the REMOTE CONFIG main page.
- On the left section....select **Device Parameters > Device Information**
- Go to the Video Format field and select either NTSC or PAL.
- Click **Save**.

Figure 8: Device Information

The screenshot shows a 'Remote setting' window with a tree view on the left and a 'Device Information' tab on the right. The tree view includes folders for Device Parameters, Channel Parameters, Network Parameters, Serial Port Settings, Alarm Parameters, Exception Parameters, Account Management, HDD Settings, and Update Remotely. Under Device Parameters, 'Device Information' is selected. The 'Device Information' tab contains the following fields:

- Device Name: TVN 20
- Overwrite: Yes (dropdown)
- HDD Number: 4
- Alarm Input Number: 16
- Alarm Output Number: 4
- Device Serial No.: TVN20161620101112BBRR000519743W
- eSATA: For HDD Array (dropdown)
- Video Format: NTSC (dropdown)
- ☐ Automatic IP camera connection
- Sync to PC time (button)

At the bottom of the window are buttons for Default, Reboot, Save, and Cancel.

On the left section....select **Device Parameters > Device Information**

- **Overwrite** determines that recording will be circular and overwrite older video with newer video. The setting should remain **Yes** for most users.

- **HDD Number** indicates the number of HDDs installed within the unit.
- **Alarm Input Number** indicates the total number of alarm inputs built into the unit that are available.
- **Alarm Output Number** indicates the total number of alarm outputs built into the unit that are available.
- **Device Serial No.** is the unit's serial number.
- **eSATA** identifies an output connection that allows for connecting an external eSATA storage device. At this time this feature is not available and will be released in a later release of the firmware.
- **Automatic IP camera connection** should only be checked if you have a single TVN 20 in your system. The feature will automatically detect all discoverable IP cameras and upon logging out and then back in, available cameras will be added until all available channels on the unit are occupied.  
**DO NOT** use this feature if you have more than one TVN 20 on the same network as you will risk having the same camera connected to two or more TVN 20 units.
- **Sync to PC time** will perform a time-synch between the PC of the connected Browser and the TVN 20 using the PC's time. The time synchronization only takes place when the button is pushed. The TVN 20 will automatically perform a time synchronization to the IP camera every 5 minutes.

To save the changes you have made, press the **Save** button.

**Note:** Pressing the **Default** button restores Factory Defaults for the TVN 20. Pressing the **Reboot** button immediately reboots the box while keeping the network settings. Under normal conditions the only reason to reboot the unit is:

- Changing the IP Address, DHCP, PPPoE, Device Port of the TVN 20.
- Changing the Alarm Inputs state (NO/NC).
- Pushing a firmware update to the TVN 20.
- Restoring default settings.
- Importing a configuration from the external software like TruVision Navigator.

A typical reboot can take between 45 to 75 seconds before full functionality is restored.

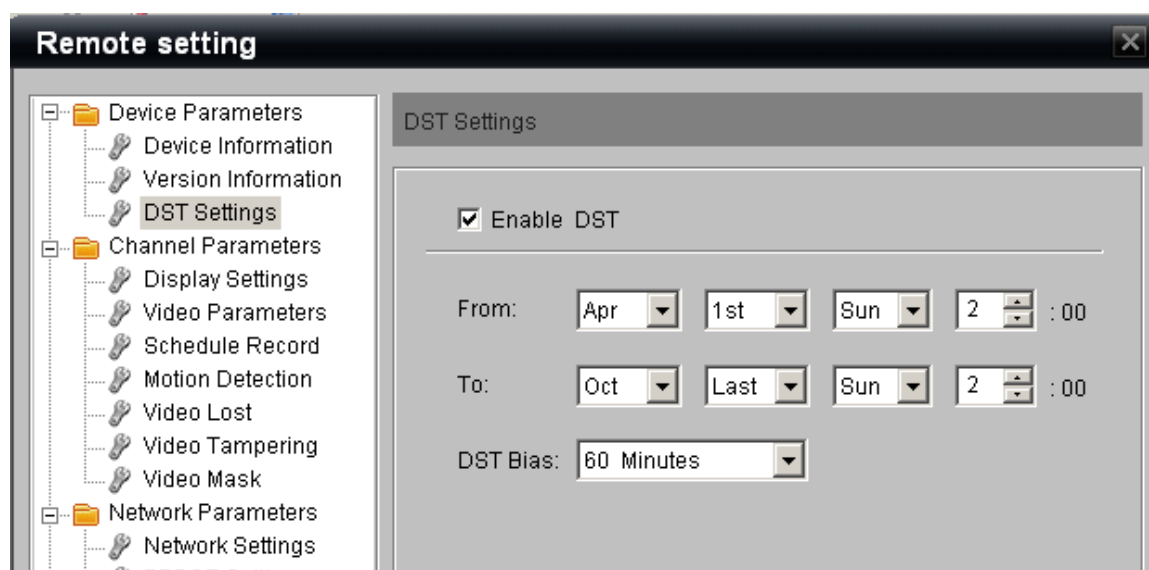
## Step 3: Set Daylight Savings Time and NTP Server Settings

### Daylight Savings Time

This is important for correct video recording.

- From the Device Parameters > DST Settings, to enable automatic daylight savings adjustment click the checkbox **Enable DST** (the default behavior is NOT enabled)
- Enter the correct dates and times for the time changes.

Figure 9: DST Settings



**Note:** DST Bias is a specific field for certain areas around the world where daylight savings time adjustments are more than one hour. This setting allows the system to adjust to these regions.

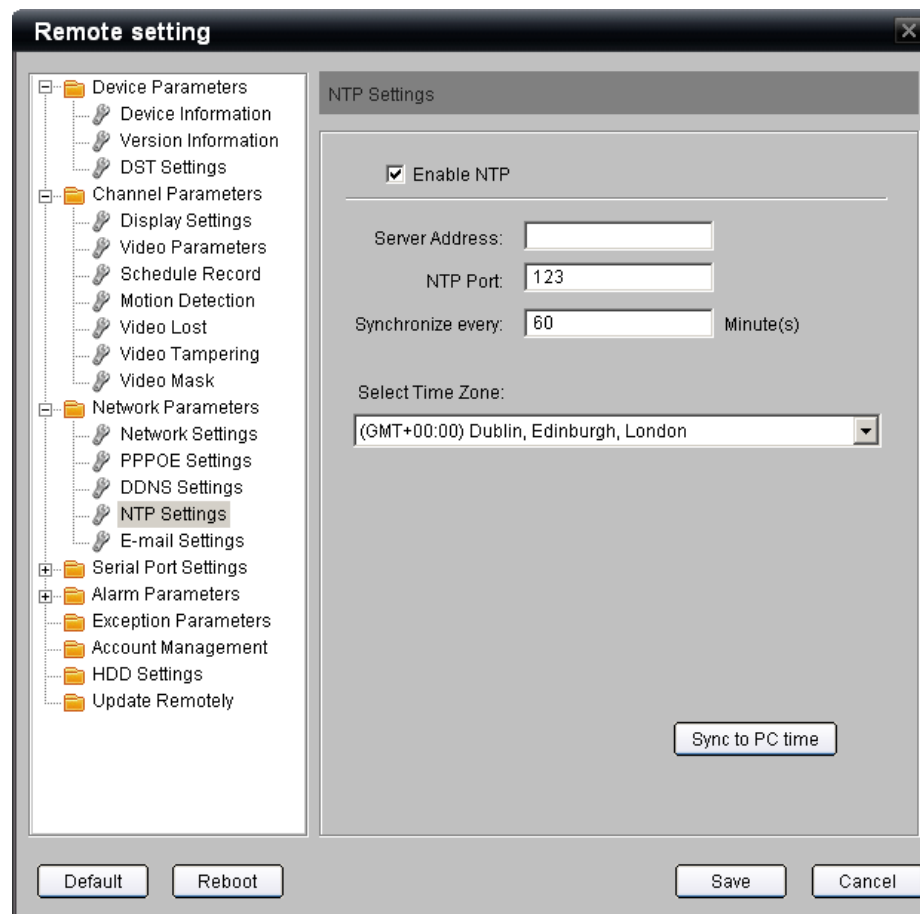
### NTP

Time synchronization between IP devices is critical for effective and accurate video recording. Many IP Cameras look for an NTP server or some other device to synchronize their time to. Network Video Recorders like the TVN 20 are interacting not only with other TVN 20's but the many IP cameras that each is carrying its own time. It is vital that all of these devices share a single common time.

The NTP Server can be as simple as the Client/Server PC in an Interlogix's TruVision Navigator installation, or it may be a specific NTP server on the network tasked with maintaining a unified network system time.

- From the Network Parameters Folder select **NTP Settings** element, in order to enable and point the TVN 20 to the appropriate time server.
- Select the **Enable NTP** checkbox to establish an NTP server that the TVN 20 will point to. (Default setting is NOT checked)
- Enter the Server Address for the NTP Server; this may be an IP address or a Domain Name.
- Enter the NTP Port address; most NTP Servers use the default port of 123.
- Set the frequency of time synchronization for the TVN 20 with the NTP Server, the default is every 60 minutes.
- From the drop down list select the time zone where the TVN 20 resides, the default is (GMT+00:00) Dublin, Edinburgh, London.

**Figure 10: NTP Settings**



- **Sync to PC time** will perform a time-synch between the PC of the connected Browser and the TVN 20 using the PC's time. The time synchronization is only when the button is pushed. This should only be used if NTP is not

enabled. The TVN 20 will automatically perform a time synchronization to the IP camera every 5 minutes.

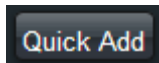
## Step 4: Adding IP Cameras

Adding IP cameras to the TVN 20 is at the heart and soul of the system. There are two methods for adding IP cameras:

- Automatically via Auto-Discovery (using **Quick Add** function)
- Manually

Auto-Discovery automatically locates the IP address of IP cameras and inputs the default connection parameters (User Name, Password, and Port Number). If a camera does not support Auto-Discovery, the User can manually add cameras without loss of capability.

### Using the Quick Add function

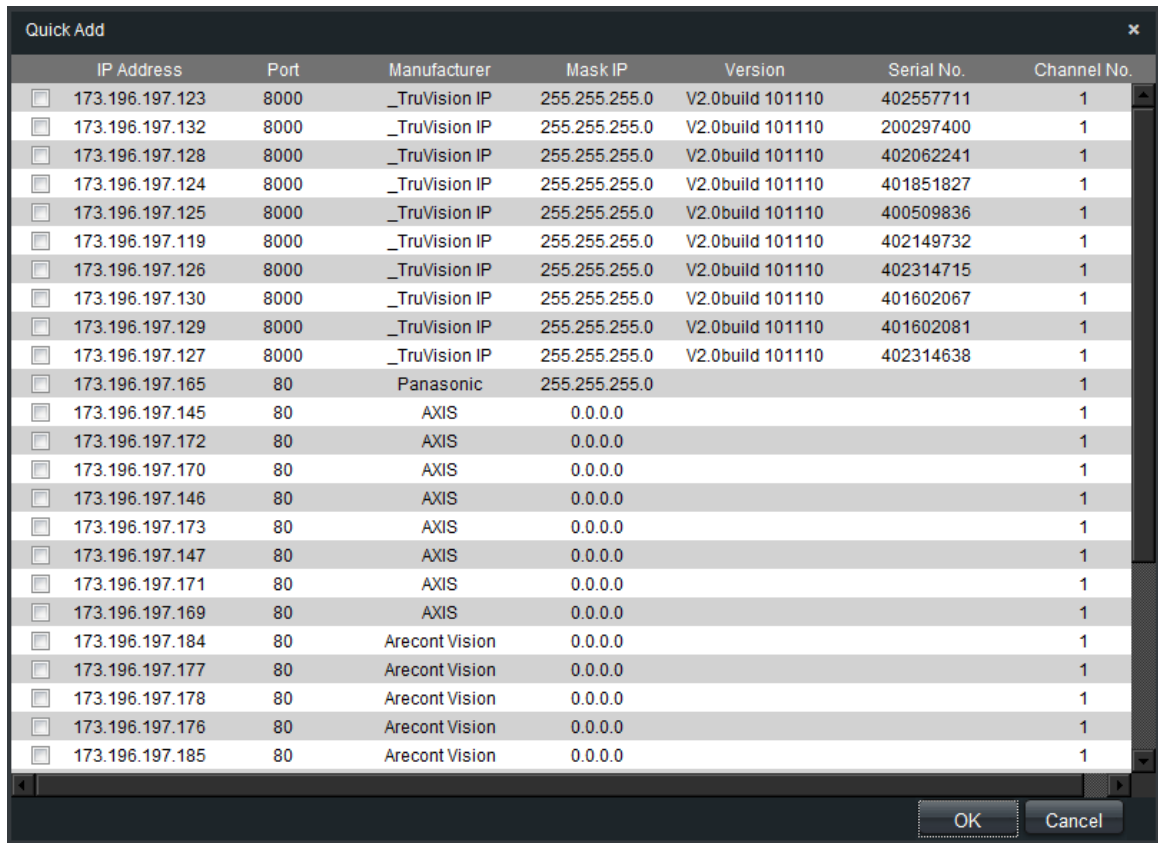


Use the **Quick Add** button to locate Auto-Discovery compatible IP camera devices. The unit will scan the local network and list all discoverable camera devices. Use the check box to select those devices you wish to add to the connected TVN 20.

Quick Add will only detect cameras that are on the same LAN. It is not able to detect cameras that are on a VLAN. If Quick Add does not detect your cameras, please follow the procedures listed under **Alternative Add - Manual Process**.

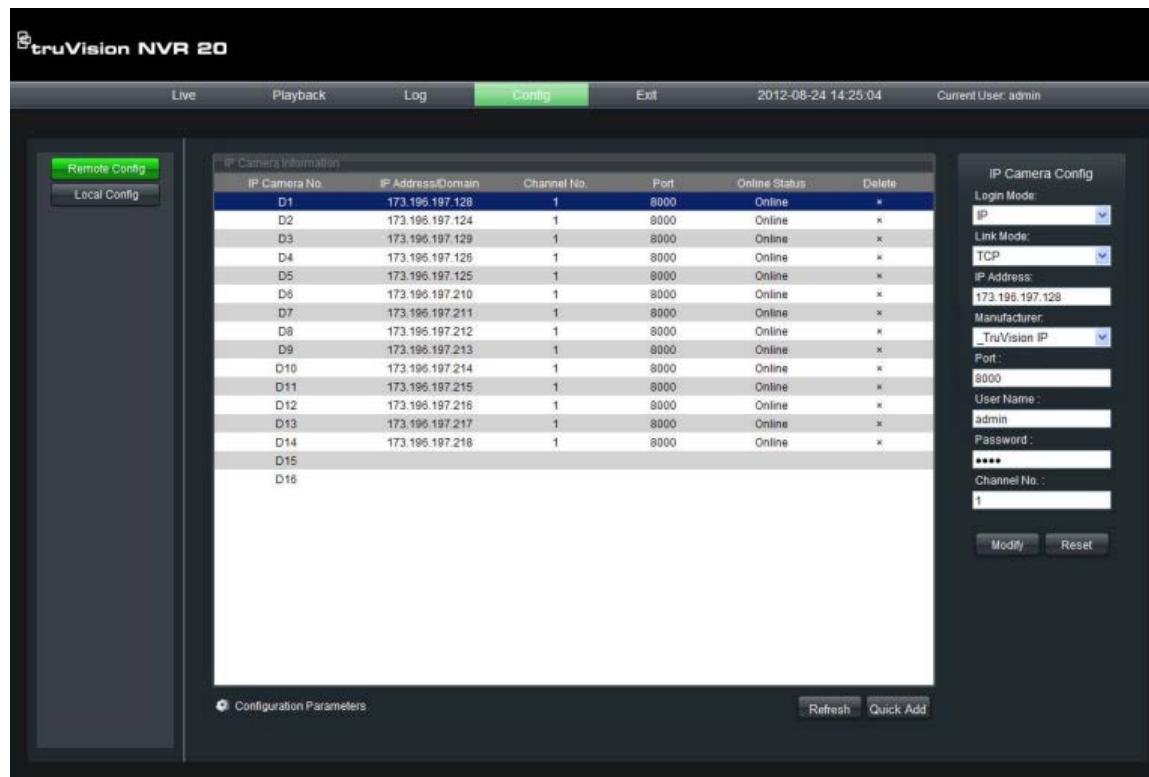


**Figure 11: Quick Add Window**



Select the devices you wish to add and Click **OK**. The system will return you to the previous window this time populated with the selected cameras.

Figure 12: Populated Config Window



Clicking on the Channel No. for each line, the IP Camera Config panel on the right will display additional details about the configured camera.

**Please Note:** The Online/Offline status will not automatically refresh its status and may take a few minutes before its status will be available. Press the Refresh button to refresh the connection list.

### Alternative Add – Manual Process

Should the desired IP camera not support Auto-Discovery or if other network issues inhibit auto-discovery, the user can manually add cameras.

- Select the channel number (D1, D2, D3.....); this will allow the USER to populate the IP Camera Config panel (on the right of the screen).
- Login Mode = IP (or Domain)
- Manually input the IP Address or Domain.
- Select the IP camera/encoder manufacturer from the drop down list.
- Select the communication port used by the camera (per the IP camera manufacturer's specifications usually port 8000 or 80).
- Enter the IP Camera's User Name and Password.
- Channel No. only applies if the device connected is a multi-channel encoder, the default value of 1 should be sufficient for most installations.

- Press Modify to add the camera.
- The camera will show up in the list if the setup parameters are correct.

## Step 5: Configure IP Camera - Device Settings

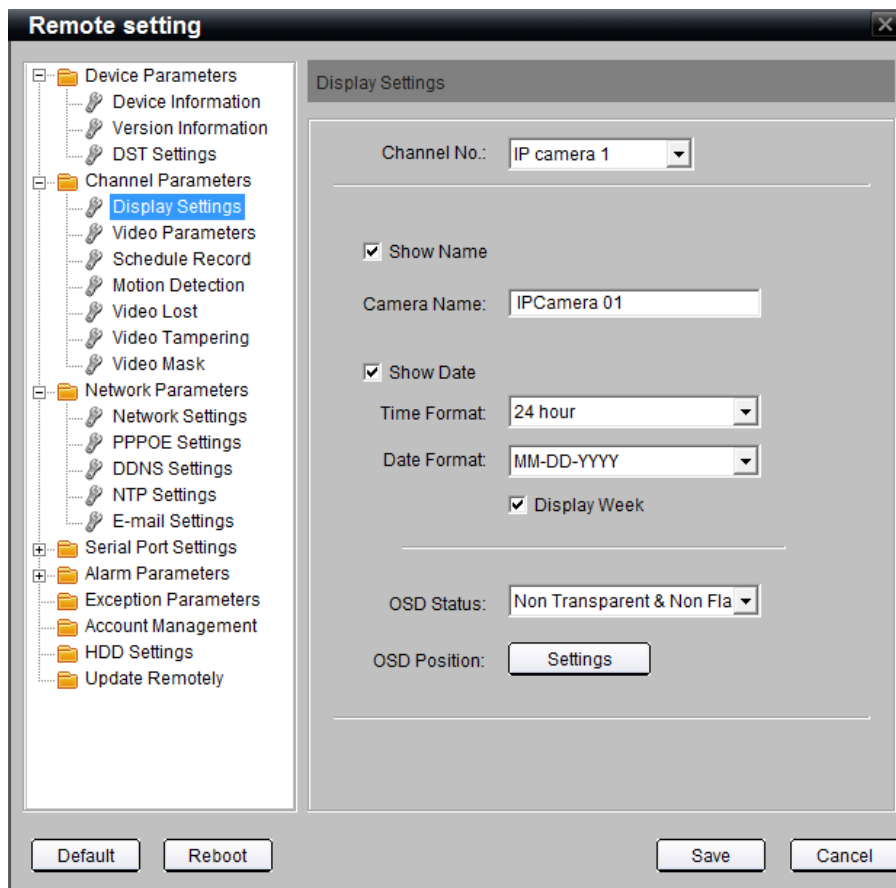
Depending on the IP Camera model, the IP Camera titles, on-screen display (OSD), frame rate and activity detection may be configured within the TVN 20 Browser. In the cases where functionality within the browser does not support configuration, the User can link to the IP camera web page and configured the desired parameters.

There is a chart at the end of this guide that shows the current list of supported cameras and their capabilities. Please check with your Interlogix representative for the latest list of supported cameras.

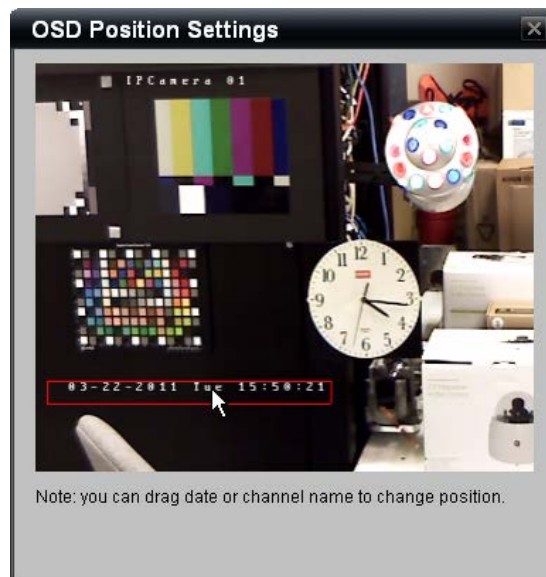
### Configuring Cameras via the TVN 20 – On Screen Time/Date/Titling

#### Fully Configurable Cameras

Figure 13: Display settings for fully configurable cameras



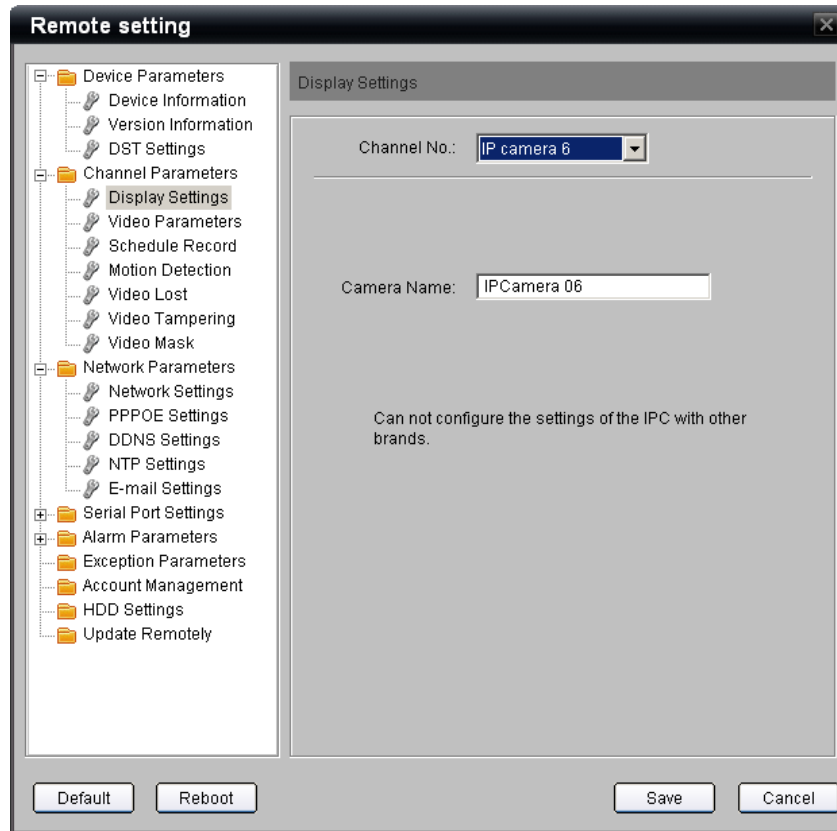
- Select **Channel No:**
- Click **Show Name** if you want the camera title to be overlaid on the video.
- Enter the desired camera name.
- Click **Show Date** and select the time format 12/24 Hour, Date Format and also select Display Week if you want the Day of the Week to be displayed.
- Select the type of OSD display – the default Non Transparent & Non Flashing is recommended.
- OSD Position allows the User to independently position the Time/Date/Day display distinctly from the Camera Title. Press OSD Position > Settings to bring up the OSD window. Simply click on the time/date or camera title elements, click and drag each of them using your mouse, to the desired placement within the image.



- The **Copy** button allows you to duplicate these settings to another camera to speed configuration.
- Click **Save** to save these settings.

## Configurable Cameras Only by the IP Cameras Web Page

Figure 14: Display settings by the IP cameras web page



IP Cameras (IPC) that do not support full OSD configuration will allow the User to define a local (internal) camera title for easier identification of the camera. IP Cameras that do not allow setting of OSD display, even though the TVN 20 allows identifying a camera title, this title is for user identification of the camera but is not included as part of an On-Screen-Display (OSD) from the camera.

**Note:** Please enable the IP Cameras Time/Date and Title on-screen displays from the Manufacturers Web Page. This is strongly recommended for evidence collection purposes.

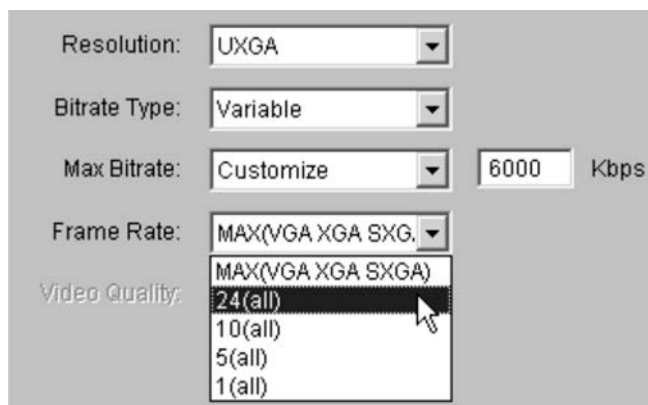
## Step 6: Configuring IP Camera - Resolution Settings

### Important Detail about Available Resolutions and their Matching Frame Rates

Most IP Cameras have limitations on the available frame rates they can support at different resolutions. Keeping track of this can be very complicated. We have

chosen in the Frame Rate field to list the Resolutions that support the various frame rates.

**Figure 15: Frame Rate Field**



The screenshot shows a configuration window with the following fields and options:

- Resolution:** A dropdown menu currently set to "UXGA".
- Bitrate Type:** A dropdown menu currently set to "Variable".
- Max Bitrate:** A dropdown menu currently set to "Customize", followed by a text input field containing "6000" and the unit "Kbps".
- Frame Rate:** A dropdown menu currently set to "MAX(VGA XGA SXG...".
- Video Quality:** A dropdown menu currently set to "24(all)". The menu is open, showing the following options: "MAX(VGA XGA SXGA)", "24(all)", "10(all)", "5(all)", and "1(all)". A mouse cursor is pointing at the "24(all)" option.

The example here shows a selection of UXGA (Resolution 1600x1200). The **Frame Rate** dropdown shows

- Full frame rate is available for VGA, XGA and SXGA resolutions
- At frame rates 24(all) and below **ALL** resolutions are supported including the UXGA resolution.

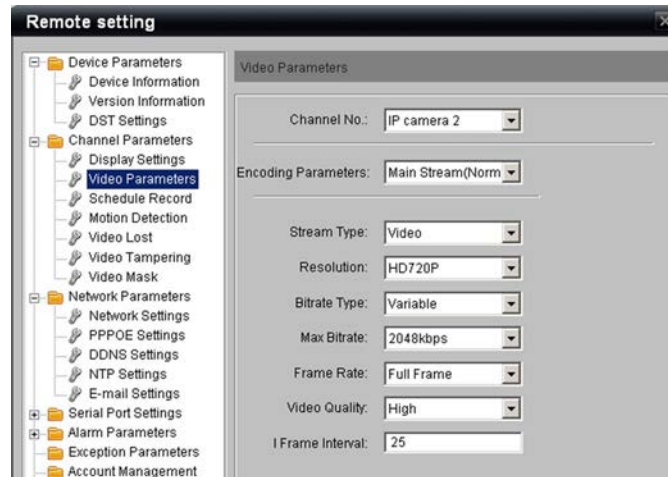
In this instance, if the desired resolution is UXGA, then the maximum available frame rate is 24 images per second.

The above image also shows that when you select **Customize** for the **Max Bitrate**, an additional field is available to manually set a target bitrate in Kbps.

## Configuring Cameras via the TVN 20 – Video Streaming (Encoding) Parameters

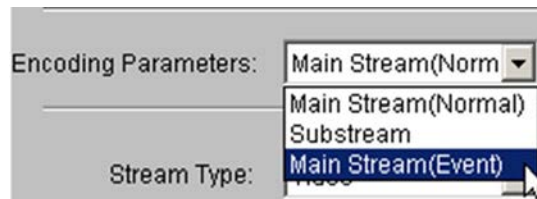
### Fully Configurable Cameras

Figure 16: Encoding Parameters for fully configurable cameras



Under Encoding Parameters some cameras support more than one video profile that may be used for normal, event and (low-bandwidth), sub-stream for live streaming.

Figure 17: Encoding Parameters menu



When more than one encoding profile is available, it is necessary to select each profile and set the configuration parameters below. Press **Save** after configuring each profile before selecting another profile to configure. Repeat the steps below for each configured encoding profile.

1. Select Channel No:
2. Under **Encoding Parameters** Select the stream you wish to configure.
3. Select the **Stream Type** - Video is the default, some cameras will support both Video and Audio.
4. Select the desired **Resolution** from the drop down list.
5. Select the desired **BitRate**. The default is Variable.

6. Select the **Max Bitrate** for the camera from the available settings in the drop down menu.
7. Select the desired **Frame Rate** from the drop down list box for the camera.
8. Select the desired **Video Quality** from the available entries in the drop down list box.
9. Press **Save** after all entries for the selected encoding profile have been completed.

Remember to repeat these steps for each Encoding Parameter available.

## Partially Configurable Cameras

Figure 18: Encoding parameters for partially configurable cameras



Cameras without full configurability will show the parameters reflecting the key functionality of that manufacturers' camera. Not all features of some manufacturer's camera are supported in the TVN 20.

If the TVN 20 supports multiple encoding parameters, follow the same steps for a fully configurable camera.

Follow the steps for Fully Configurable Cameras based upon the options enabled and choices available in the drop down lists.

## Additional Information Bitrate Types

### Variable Bitrates

- Select this method if you desire to optimize recording as the data rate varies based upon the scene complexity.
- Use this especially for cameras where the background or scene activity may be less intense.



- Any bitrate target set for these cameras is only a target and the effective bandwidth can be 10-20% above the target and depends on the IP Camera manufacturer and the amount of scene activity.

### Constant Bitrates

- Use this when it is important for predictable network performance and limiting the impact of video on the network.
- Under CBR, the data rate does not exceed the set limit.

### Troubleshooting

*What do I do if the selected IP camera is not fully configurable from the TVN 20?*

As stated previously not all cameras that can connect to the TVN 20 support full configuration from the TVN 20. On-Screen Display (OSD), some frame rate and encoding parameters and video motion detection may only be configurable using the IP Camera Manufacturer's web page.

From the main **Config** page (**REMOTE**), in the listing of the IP camera, the user can directly launch the IP Camera Manufacturer's web page by clicking on the IP address.

Figure 19: IP camera information page

IP Camera Information					
Channel No.	IP Address/Domain	IP Camera No.	Port	Online Status	Delete
D1	178.196.197.155	1	8000	Offline	×
D2	178.196.197.156	1	8000	Offline	×
D3	178.196.197.157	1	8000	Offline	×
D4	178.196.197.170	1	80	Offline	×
D5	178.196.197.180	1	80	Offline	×
D6					
D7					
D8					

You can now finish configuring the desired elements not available in the TVN 20.

**Note:** If a feature is configurable in the TVN 20, then configure it from the TVN 20. The setting in the TVN 20 will overwrite any changes made directly to the IP Camera via the Manufacturer's browser.

## Step 7: Setting Up Recording Schedules - Introduction

The TVN 20 supports a robust set of scheduling capabilities which include normal and event recording with up to 8 time periods per day. Recording schedules can be copied across every day of the week and to multiple cameras for fast entry. Recording schedules interact with the available encoding profiles.

**Note:** By default every camera added to the system is automatically enabled for 7x24 continuous recording.

The TVN 20 uses a maximum of two recording profiles (independent frame rate, resolution, and bandwidth) with recording schedules. Not all listed IP cameras support two recording profiles. Where the camera supports, the two possible profiles are (check the IP Compatibility Chart for specifics):

- Main (Normal) - associated with Scheduled/Time-Lapse Recording
- Main (Event) – associated with Motion and Alarm Recording
- SubStream – available only for live view in multi-camera display through the browser and Interlogix TruVision Navigator software (if supported by the camera)

**Table 3: IP Compatibility Chart**

Record Mode	Description	Multiple Profile IP Cameras (used Profile)	Single Profile IP Cameras	Live Stream*
Schedule Record	Time-Lapse or Continuous Recording	Main - Normal	Main - Normal	Main – Normal (Substream if available)
Motion Detection	Event recording triggered by IP Camera motion detection	Main - Event	Main - Normal	Main - Event
Alarm Recording	Event recording triggered by any of the TVN 20's on-board analog alarm inputs.  With some cameras, the digital alarm inputs from the IP Camera may be used	Main - Event	Main - Normal	Main - Event
Motion Detection / Alarm	Recording is triggered either if there is a motion detection OR an alarm input is triggered (OR-Gating)	Main - Event	Main - Normal	Main - Event
Motion Detection & Alarm	Recording is triggered only if there is motion detection AND an alarm input (And-Gating)	Main - Event	Main - Normal	Main - Event

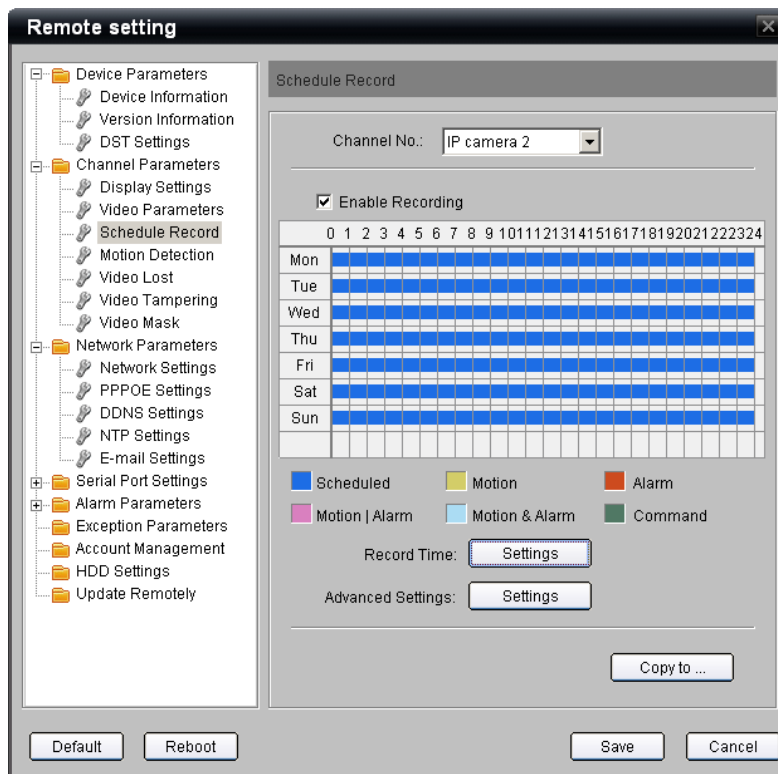
\* If the IP Camera supports only a single encoding parameter in the TVN 20, only that stream is available for Live Streaming

## Scheduled Recording Configuration

Follow the steps below to setup scheduled recording:

1. Configure Time-Lapse Recording (Schedule Recording).
2. Configure Motion Activated/Alarm Input Recording Schedules.

Figure 20: Scheduled Record window



The color bands show the enabled recording mode for the camera.

Scheduled = Blue	Motion = Yellow	Alarm Input Only = Red
Motion OR Alarm = Purple	Motion AND Alarm = Light Blue	Command = Future Use

## Step 8: Setting Up Recording Schedules - Sample Configuration

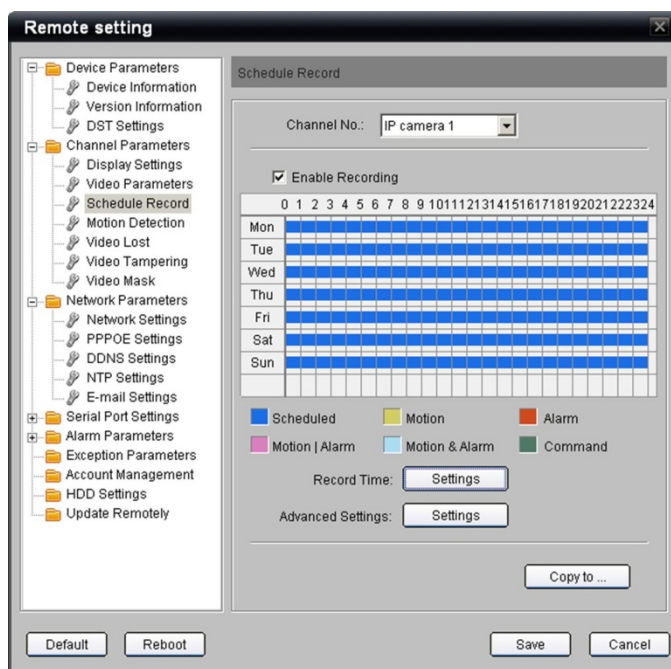
Completing this sample configuration will familiarize you with the essential skills needed to configure any camera for recording.

Camera 1 will be recorded as follows:

- 00:00:00 to 06:45:00 hours in Motion Detection mode (Midnight to 6:45AM).
- 06:45:00 to 17:00:00 hours in Schedule Recording mode (Time-Lapse from 6:45AM to 5:00PM).
- 17:00:00 to 24:00:00 hours in Motion Detection mode (5:00PM to Midnight).
- This daily schedule will be applied for every day of the week.
- Copy this schedule to Cameras 1, 2, 3 and 4.

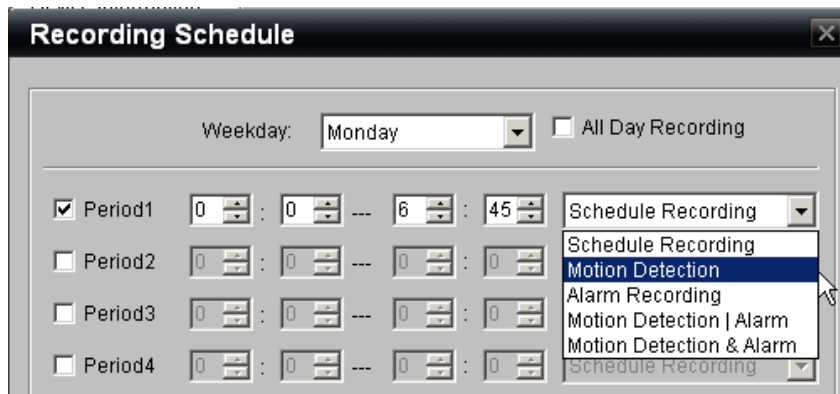
### Begin Configuration

1. Select Scheduled Recording folder from the navigation window.
2. Select Camera 1.
3. Make sure the Enabled Recording option is checked.
4. Click on Settings button associated with the **Record Time** field.

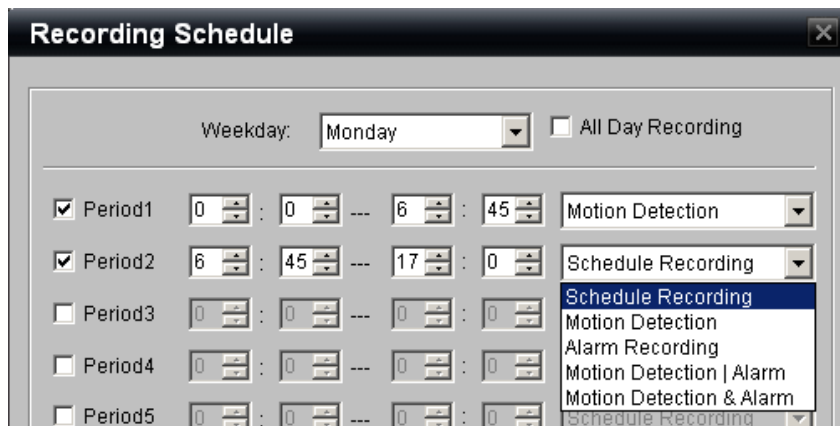


5. Make sure All Day Recording is NOT checked.

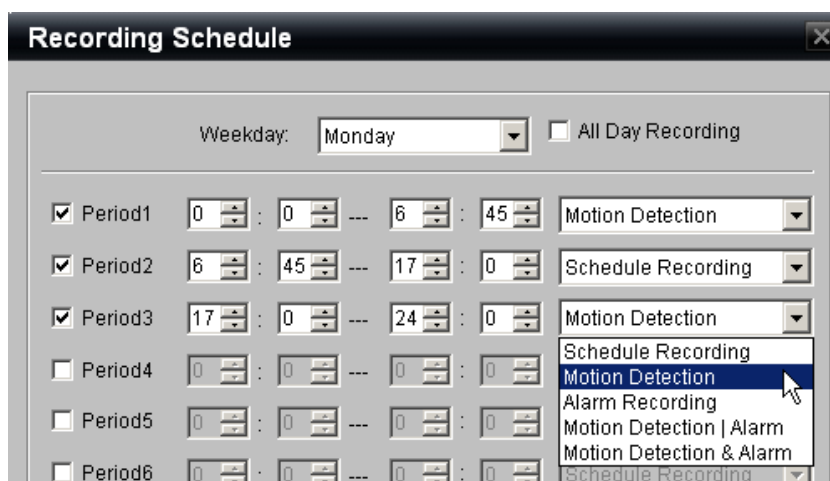
6. Any day of the week may be selected in the Weekday drop down (we will copy this to every day of the week later).
7. Click on **Period1**.
8. Enter 0:0 for the start time and 6:45 for the end time (you can enter the values directly or use the selection buttons).
9. From the Recording mode drop down list, select **Motion Detection**.



10. Select **Period2**.
11. Enter 6:45 for the start time and 17:0 for the end time.
12. From the Recording mode drop down list, select **Scheduled Recording**.



13. Select **Period3**.
14. Enter 17:0 for the start time and 24:0 for the end time.
15. From the Recording mode drop down list, select **Motion Detection**.



16. At the bottom of the page from the Copy to: drop down list, select **Whole Week**.

17. Press the **Copy** button to copy these settings to all days.

18. Click **OK** to complete this page and return to the Schedule Record Window.



19. Observe the updated schedule.

20. Select the **Copy to...** button at the bottom of the page to copy these settings to the desired additional cameras.

**Schedule Record**

Channel No.: IP camera 1

☒ Enable Recording

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon																									
Tue																									
Wed																									
Thu																									
Fri																									
Sat																									
Sun																									

■ Scheduled
■ Motion
■ Alarm  
■ Motion | Alarm
■ Motion & Alarm
■ Command

Record Time: Settings

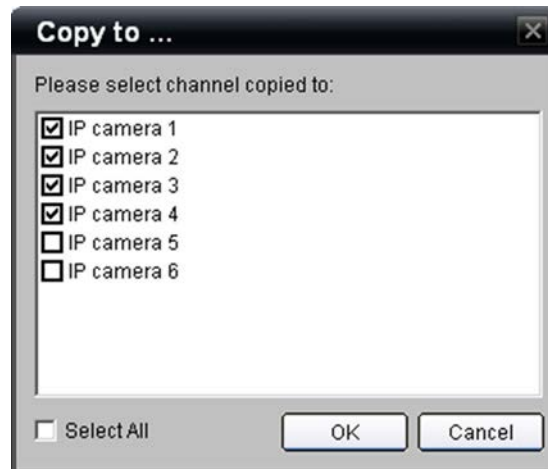
Advanced Settings: Settings

Copy to ...

Save Cancel

21. Pressing the **Copy to...** button opens a dialog box.
22. Select the checkbox for the desired cameras to receive the same schedule (in this case 1-4).
23. Click **OK** the dialog box will close and return you to the Schedule Record page.
24. To verify that the schedule was applied to the other cameras, select them from the Camera selection box at the top of the page and observe the schedules.
25. Click **Save** to assign this schedule to the cameras.

**Figure 21: The Copy to... dialog box**



## **Step 9: Final Steps for Recording Schedules – Motion Detection Trigger**

In order for Motion Recording to be possible, motion detection must be enabled on the desired cameras.

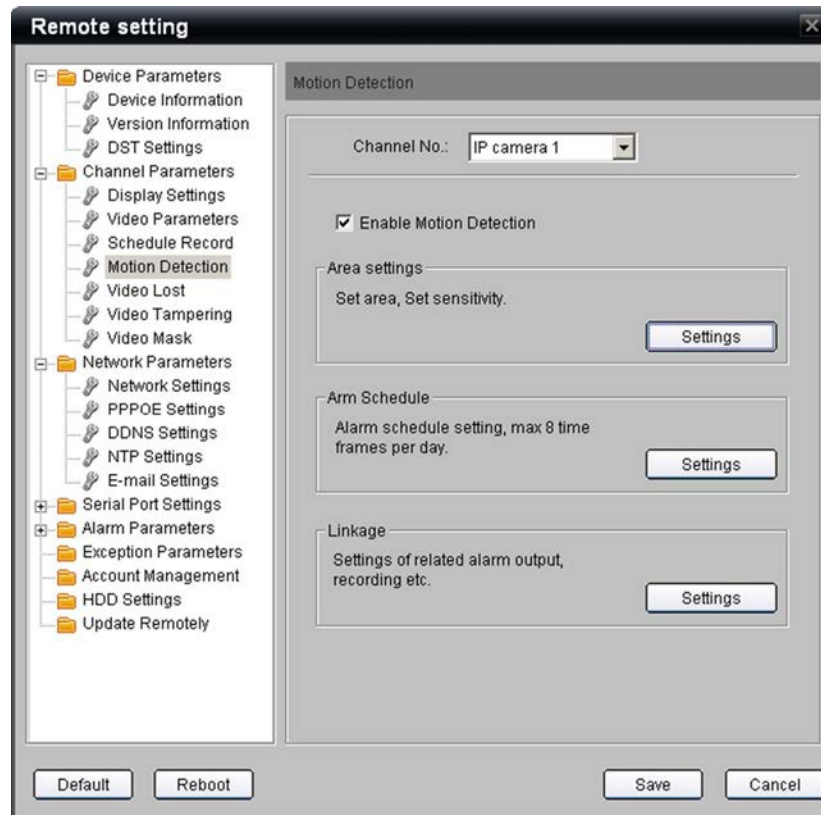
This is a simple two-step process:

1. Enable Motion Detection on the IP Camera.
2. Define the activation schedule for the IP Camera motion detection trigger.

For select IP Cameras, the TVN 20 can configure motion detection areas (regions of interest) within the TVN Browser. For the other IP cameras, the TVN 20 incorporates a link to the IP camera's web page to enable configuring motion detection directly on the IP Camera.



Figure 22: Motion Detection window

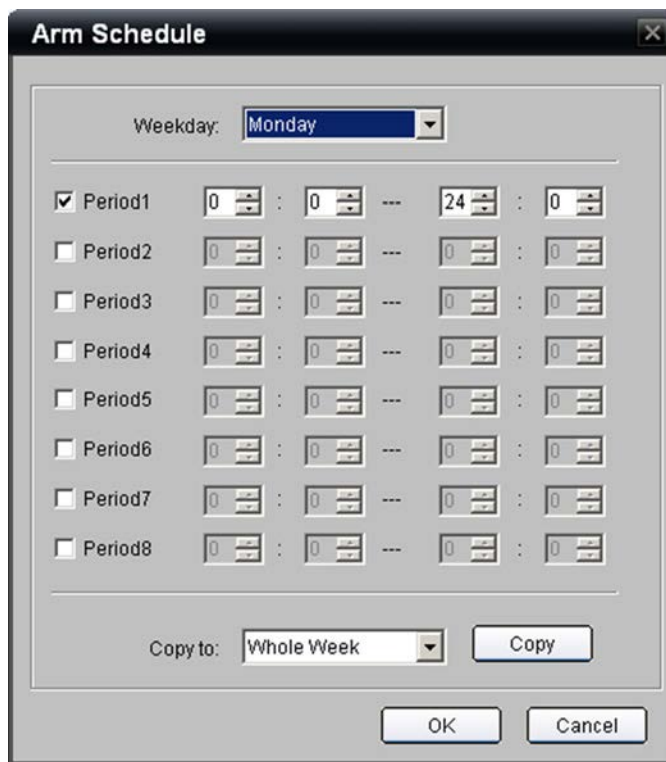


1. Select Motion Detection folder from the navigation window.
2. Select **Camera 1**.
3. Make sure the **Enable Motion Detection** option is checked.
4. Click on the **Area** settings button (this button is available if the IP Camera selected is supported in the TVN 20 for motion area definition). A settings dialog box opens.

If the IP Camera does not support this function within the TVN 20, then the Settings button will not be accessible. The user will need to access the IP camera's web page to configure Motion Detection Regions of Interest (ROI).



5. Select the **Start Draw** check box.
6. Using the mouse, click and drag up to 4 areas.
7. Click on the desired Sensitivity setting.
8. Click **OK** to accept the settings.
9. The display will return to the Motion Detection page.



10. Select **Settings** from the Arm Schedule to define a schedule for motion events.
11. The default setting is motion detection is enabled 7 x 24.
12. The User can define a specific schedule for when motion detection streams are available to the system.
13. Up to 8 Enabled periods may be defined with an **On** time and an **Off** time.
14. The daily schedule can be copied to other days or the entire week using the **Copy** button.
15. Click **OK**, the browser will return to the Motion Detection page.

**Note:** These settings are available regardless of how motion detection areas are defined in the camera (by the TVN 20 or at the Camera).

**Configuration Note:** If a Recording schedule with Motion Detection periods is defined, is it necessary to have the motion activation schedule match the Schedule Recording settings?

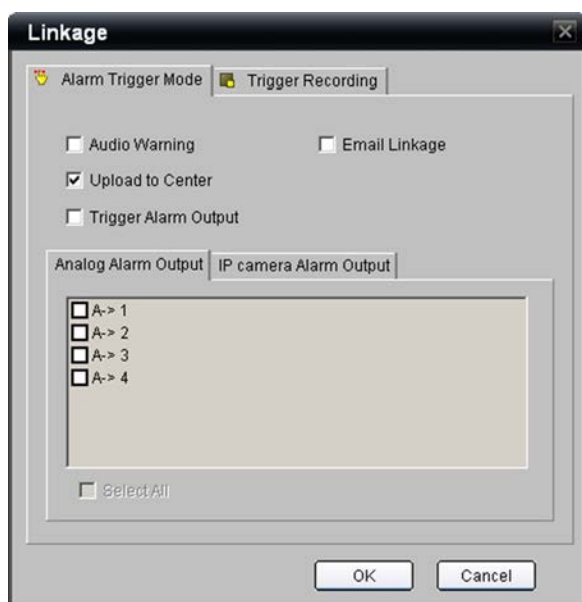
Matching the schedules provides for more precision in how video may be recorded and viewed when two recording streams are supported. Normally, Schedule Recording (Time-Lapse) will be at a lower frame rate and perhaps lower image resolution than Motion Event recording which is typically at higher frame rates and resolution settings.

The default setting when motion is activated for a camera with the event schedule set at 7x24 hours will increase the amount of storage on the system

during periods when Schedule Recording (Time-Lapse) occurs without motion detection set to the same schedule.

Recording Mode	Motion Detection Set 7x24	Motion Detection Not Active during Schedule Recording Periods
Scheduled (Time-Lapse)	During motion detection – cameras will be recorded at the Main (Event) rate	Recording will be at the time-lapse rate
Motion/Event Recording Mode	Recording at Motion/Event Record Rate	Recording will be at the time-lapse rates
Live Viewing	Live viewing during an event will be at the Motion/Event settings	Live viewing if motion/event not active during Scheduled Recording (Time-Lapse) periods will be a the time-lapse rate

16. From the main Motion Detection page select **Linkage: Settings** to define the TVN 20's response to a Motion Event.



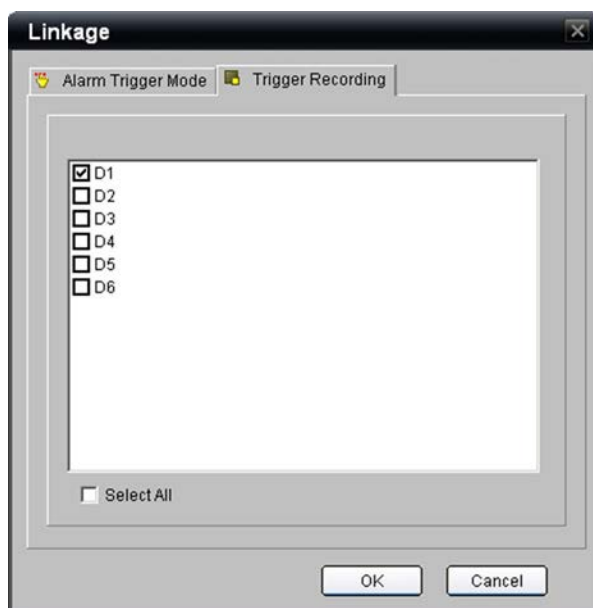
17. Under the **Alarm Trigger** Mode tab select Audio Warning to trigger a local box audible upon an event.

18. **Upload to Center** should be checked for Interlogix TruVision Navigator notification.

19. Trigger Alarm Output to fire one or more of the TVN 20's alarm outputs.

20. Email Linkage if you want the event to send off an email.

21. If Trigger Alarm Output is enabled, the user can switch one or more of the Alarm Outputs under the Analog Alarm Output tabs (A->1 thru A->4).



22. In order to enable recording for this event, select the **Trigger Recording tab** to define which camera(s) will be recorded.
23. When satisfied, click **OK** to return to the main Motion Detection window.
24. Make sure **SAVE** is pressed to save these settings.
25. Make sure you press **SAVE** after each camera is configured.

# Alarm Inputs

The TVN 20 includes 16 alarm inputs that may be used to trigger specific camera recording, activate local TVN 20 relays and audible notifications, as well as send remote event notifications via email or to video software management programs like Interlogix's TruVision Navigator software.

From the main Configuration page select **Alarm Parameters** folder and the **Alarm Input Settings** option to define the TVN 20's 16 alarm input's behaviors.

There are two types of alarm inputs that are configurable.

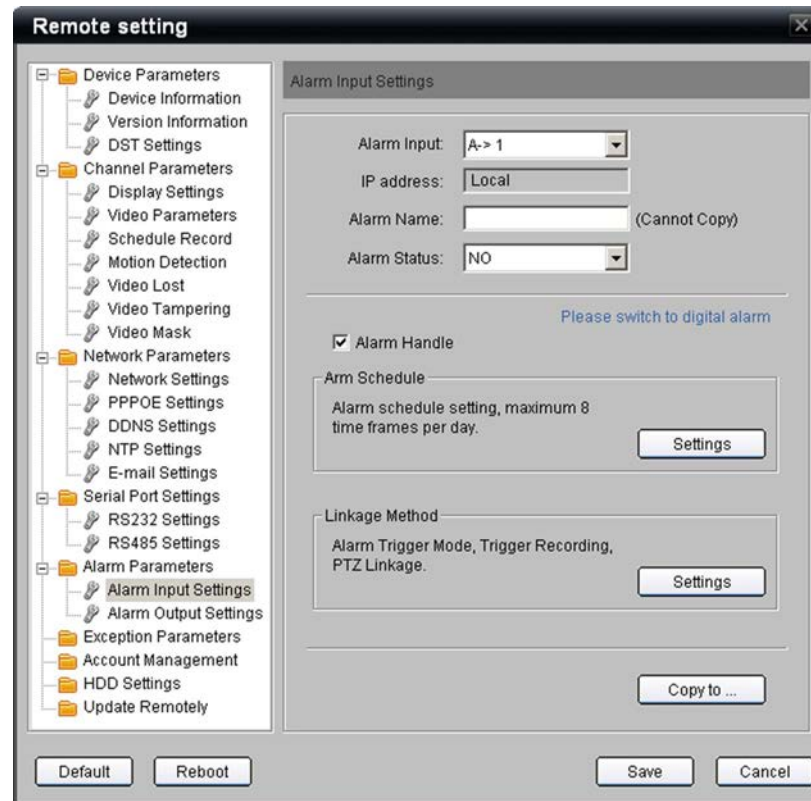
- The 16 on-board inputs.
- For select IP cameras, the unit can also respond to the inputs on-board to the camera (Please see the **Advanced Alarm Input & Output Settings** section of this manual for additional information).

On-Board Alarm Inputs are defined as: A->1 to A->16.

## Select the desired Alarm Input

1. If desired give the Alarm Input a local name within the TVN 20.
2. Select the electrical connectivity of the input as a Normally Open (NO) or Normally Closed (NC).
3. To enable the alarm input, select the checkbox **Alarm Handle**.

Figure 23: Alarm Input Settings



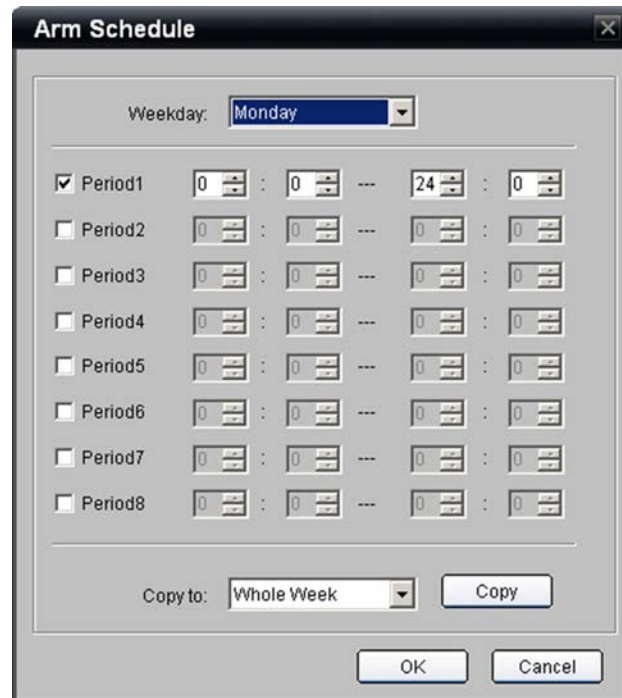
The default enabled (Arm) schedule is 7x24 for every day of the week.

Follow the same procedure as for Motion Detection schedules to set specific **On** and **Off** periods for the alarm input.

You may copy the schedule to specific days via the **Copy to...** drop down.

Once you have finished the schedule, press **OK** to return to the main alarm input window.

Figure 24: Arm Schedule



The 'Arm Schedule' dialog box features a 'Weekday' dropdown menu currently set to 'Monday'. Below this, there are eight rows representing different time periods, each with a checkbox and a time range selector. 'Period1' is selected with a time range of 00:00 to 24:00. Periods 2 through 8 are not selected and show a time range of 00:00 to 00:00. At the bottom, there is a 'Copy to:' dropdown menu set to 'Whole Week' and a 'Copy' button. 'OK' and 'Cancel' buttons are located at the very bottom of the dialog.

Press the **Linkage Method Settings** button to configure the behavior of the alarm input when triggered.

Figure 25: Alarm Trigger Mode tab



The 'Linkage' dialog box has three tabs: 'Alarm Trigger Mode' (selected), 'Trigger Recording', and 'PTZ Linkage'. Under the 'Alarm Trigger Mode' tab, there are four checkboxes: 'Audio Warning' (unchecked), 'Email Linkage' (unchecked), 'Upload to Center' (checked), and 'Trigger Alarm Output' (unchecked). Below these is a sub-section with two tabs: 'Analog Alarm Output' and 'IP camera Alarm Output'. The 'Analog Alarm Output' tab is active, showing a list of four checkboxes labeled 'A-> 1', 'A-> 2', 'A-> 3', and 'A-> 4', all of which are unchecked. A 'Select All' checkbox is located below this list. 'OK' and 'Cancel' buttons are at the bottom of the dialog.

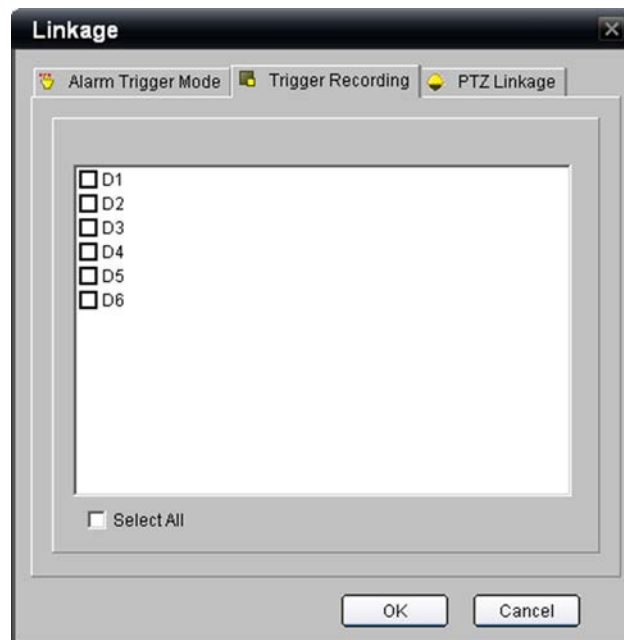
Under the Alarm Trigger Mode tab select:



- **Audio Warning** to trigger a local box audible upon an alarm.
- **Upload to Center** should be checked for Interlogix TruVision Navigator notification.
- **Trigger Alarm Output** to fire one or more of the TVN 20's alarm outputs.
- **Email Linkage** if you want the event to send off an email.
- If **Trigger Alarm Output** is enabled, the user can switch one or more of the Alarm Outputs under the Analog Alarm Output tabs (A->1 thru A->4).

In order to enable recording for this event, select the **Trigger Recording** tab to define which camera(s) will be recorded for this event.

Figure 26: Trigger Recording tab



When satisfied, click **OK** to return to the main Alarm Input Settings window or select the PTZ Linkages tab if you wish to enable PTZ preset, pattern or patrol behavior for PTZ cameras.

**IMPORTANT NOTE:** PTZ Linkage behaviors are not supported in the current product version. Please see the release notes associated with any firmware updates for announcement when the features will be supported.

If you select the **PTZ linkage** tab, you can define for each specific PTZ camera a pre-programmed PTZ camera Preset, Patrol or Pattern.

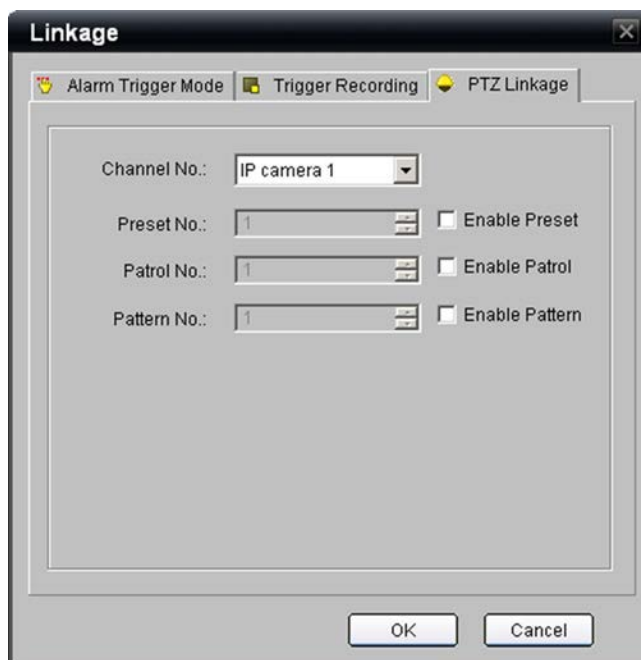
**Note:** The setting of presets, patrols and patterns are a function of the specific IP camera manufacturer's web page.

Once you have completed your desired entries, select **OK** to return to the main alarm input settings page.

Make sure **SAVE** is pressed to save and apply these settings.

Make sure you press **SAVE** after each alarm input is configured.

**Figure 27: PTZ Linkage tab**



The screenshot shows a window titled "Linkage" with three tabs: "Alarm Trigger Mode", "Trigger Recording", and "PTZ Linkage". The "PTZ Linkage" tab is selected. Inside the tab, there are four rows of settings:

- Channel No.: A dropdown menu showing "IP camera 1".
- Preset No.: A text input field with "1" and a small "PTZ" icon to its right. To the right of the field is a checkbox labeled "Enable Preset".
- Patrol No.: A text input field with "1" and a small "PTZ" icon to its right. To the right of the field is a checkbox labeled "Enable Patrol".
- Pattern No.: A text input field with "1" and a small "PTZ" icon to its right. To the right of the field is a checkbox labeled "Enable Pattern".

At the bottom of the window are two buttons: "OK" and "Cancel".

# Additional System Elements - Overview

Please see Chapter 2 “NVR Advanced Topics” on page 55 for additional information on the following TVN 20 capabilities:

## Video Lost

Every camera that is added to the system will by default be set for video lost detection. Video loss detection reporting may also be scheduled.

## Video Tamper

This feature is available on specific camera models and provides notification in the event if a camera is repositioned, the video is obscured or if the camera is being blinded by bright lights.

## Video Record Masking

This feature is available on specific camera models and allows the recorded video to include a blacked out areas necessary to maintain privacy when cameras are subject to local regulations concerning cameras located in public places.

## Exception Parameters

Please see the **Exception Parameters - System Health Monitoring** section on page 92 of this manual for additional information.

System capabilities include the detection and notification of various system health elements designed to protect the proper operation of the unit. These events can trigger local audible on the TVN 20 unit; they can trigger the local alarm outputs on the unit and can be sent to video management software such as Interlogix's TruVision Navigator software.

The type of events includes:

- HDD Fault/Failure
- IP Address Conflicts
- IP Camera Off-Line Notification
- HDD Read/Write Failures
- Network Fault

## Account Management /User Rights

Please see the **Account Management (Users)** section on page 61 of this manual for additional information.

The Browser supports three types of Users on the system. One administrative user with full rights to the entire system and two additional levels of User that can

be custom configured to determine what rights the user has to access specific cameras for live video, recorded video, manually recording video and more.

**Note:** If you change the default password for the Administrative User, this password must be used in the Interlogix TruVision Navigator software if TruVision Navigator is to connect and manage the TVN 20.

### **Additional Network Settings: DDNS, DNS, PPPoE and Email**

Please see the **Additional Network Settings** section on page 98 of this manual for additional information.

#### **DHCP and DNS**

- The system supports DHCP for dynamic IP addressing
- DNS Servers for Domain Name resolution

#### **DDNS and PPPoE Services**

These services allow connectivity via the Internet, enabling the unit to be accessed remotely across the Internet.

#### **Email**

The unit can send event and system health notifications via email including support for authentication and SSL security. Up to 3 recipients may be defined for email notification

#### **HDD Configuration and Management**

Please see the **HDD Configuration & Management** section on page 54 of this manual for additional information.

The TVN 20's hard drives are fully configured and ready to record upon turning on and adding IP cameras. The default setting for the unit's hard drives will provide the same duration of storage for all connected cameras. Cameras are recorded on a first-in, first out basis. All hard drives are configured in a single HDD group. Failure of a hard drive does not prevent all of the remaining hard drives to continue to record and retain the desired video.

The system supports advanced hard drive behaviors such as the ability to:

- Set up cameras for redundant recording. Unlike hard drive mirroring this enables one or more drives to specifically duplicate the recording of priority cameras.
- Hard Drive Groups where the benefit is that if some cameras need longer storage than others, distinct hard drive groupings may be created with specific cameras assigned to those groups.

## Remote Firmware Update

Please see the **Remote Update** section on page 106 of this manual for additional information.

The TVN 20 is remotely upgradable to the latest firmware versions. Future firmware versions will provide enhanced capability especially in the support of newer models of IP cameras in addition to enhanced features and bug fixes. Please check with your Interlogix representative or business partner regarding software/firmware service agreements that will keep your system up-to-date.

## RS-232 and RS-485 Ports

The unit includes both RS-232 and RS-485 ports.

- Currently, the RS-232 ports are only available for advanced unit troubleshooting. Additional feature capability is expected in the near future.
- The on-board RS-485 ports are for future use.

## IP Camera Alarm Inputs/Outputs Control

The unit, via specific IP Camera models, has the ability to respond to alarm inputs, to trigger alarm outputs and to control RS-485 ports that may be resident on the IP camera. This allows an alarm input on any connected camera to trigger an output on another IP camera.

## Integration with Interlogix's TruVision Navigator Software

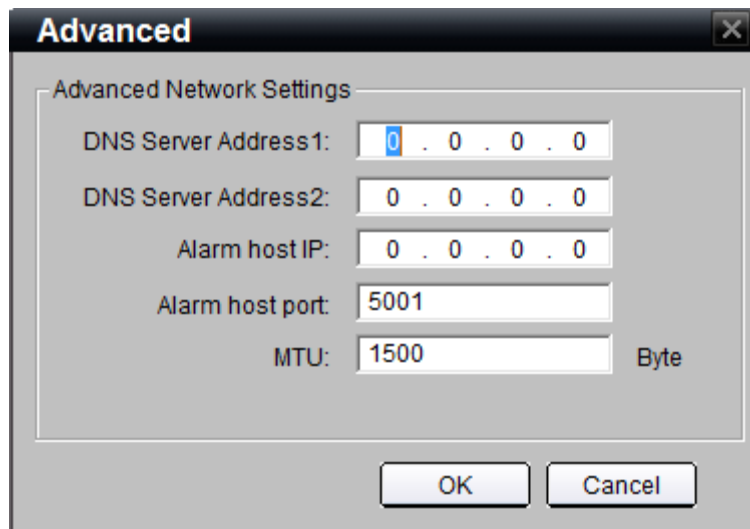
Many of the default settings in the TVN 20 are designed to speed the units' setup with TruVision Navigator software. By way of example, all health monitor events, any enabled alarm input event, motion event are defaulted to report to TruVision Navigator. The default connection ports are already set in the TVN 20 to support TruVision Navigator. It is necessary to configure via the Network Parameters > Network Settings > Advance button, the specific IP address of the TruVision Navigator Server for live, playback, event monitoring and remote configuration of the TVN 20 from TruVision Navigator.

If Interlogix TruVision Navigator software is to be used please make sure the following entries are completed:

- Alarm Host IP is set to the TruVision Navigator Software Server IP
- Alarm host port is set to **5001**
- Click **OK** to return to the main Network Settings page

- Click **SAVE** to save and apply these settings. The Browser will notify you that the TVN 20 needs to reboot. Please select **OK**.

Figure 28: The Advanced Network Setting window



The image shows a software window titled "Advanced" with a close button (X) in the top right corner. Inside the window, there is a section titled "Advanced Network Settings". This section contains five input fields: "DNS Server Address1:" with a value of "0 . 0 . 0 . 0", "DNS Server Address2:" with a value of "0 . 0 . 0 . 0", "Alarm host IP:" with a value of "0 . 0 . 0 . 0", "Alarm host port:" with a value of "5001", and "MTU:" with a value of "1500". To the right of the MTU field is the label "Byte". At the bottom of the window, there are two buttons: "OK" and "Cancel".

**Note:** Although a majority of the key elements of the TVN 20 can be configured from TruVision Navigator, some key elements such as IP Camera Auto-Discovery, Hard Drive Groups and IP Camera input behaviors can only be configured on the TVN 20 at this time.

# Local Browser PC Settings

From the **Config** tab the user can configure the main settings for IP cameras listed under Remote Config as well as set the behaviors for the Client PC that is connecting to the unit via the browser.

The settings on the Local Config page ONLY apply to the browser connection via that specific client PC (local to that PC). The default settings should be acceptable for most normal usage. Please refer to the section **Remote Record & Video Download** in the TVN 20 Advanced topics area of this manual.

The settings of specific interest may be the default file paths for saving recorded files (manual recording), capture snapshots live (preview), capture snapshots from playback, and downloading video clips wherein the User may wish to change the default storage locations. Please note, the ability of users to download and take snapshots is managed under the Account Management settings (Remote Config).

Figure 29: The Config tab

The screenshot displays the 'Config' tab of the truVision NVR 20 interface. The top navigation bar includes 'Live', 'Playback', 'Log', 'Config' (highlighted), and 'Exit'. The right side of the bar shows the date '2011-03-22 17:45:30' and the user 'Current User : admin'. On the left, a sidebar contains 'Remote Config' and 'Local Config' (highlighted). The main area is titled 'Local Parameters Information' and contains the following settings:

- Protocol Type : TCP
- The Size of File Packeting : 256M
- Stream Type : Main stream
- Network Transmission Feature : Less Delay, Good Fluency
- Display mode : Full
- Path for saving recording files : C:\Program Data\Web\RecordFiles (with a 'Browse' button)
- Path for saving preview captured images : C:\Program Data\Web\BMP\CaptureFiles (with a 'Browse' button)
- Path for saving playback captured images : C:\Program Data\Web\Playback\PicFiles (with a 'Browse' button)
- Path for saving download files : C:\Program Data\Web\DownloadFiles (with a 'Browse' button)

At the bottom of the main area are 'Save' and 'Reset' buttons.

# Live Viewing and Playback Viewing from the Browser

## The Live Viewing Browser Page

Figure 30: Live Viewing Browser Page



Table 4: Live Viewing Features

Item	Name	Description
1.	Connection Tree	The left hand panel shows the configured IP cameras on the TVN 20. Clicking on an individual camera's arrow icon will load it into the current display window. Depending on the image size and mega pixel rating of the camera, loading the camera may take several moments.
2.	Live Display modes	<p>The user can display cameras live in a 1-Up, 4-Up and 9-Up View. In a multi-screen mode, the user can simply click the TVN 20 device icon at the top of the camera list to automatically load as many cameras in the display (4 in 4-Up, and 9 in 9-Up).</p> <p>To load a camera into a specific tile of a multi-up display, the user just highlights the tile and then clicks the desired camera in the list.</p>
3.	Stop Streaming	Stops all streaming
4.	Capture	Takes a snapshot of the currently highlight camera and saves it to the local browser PC.
5.	Start Recording	Allows local PC recording of all cameras active in the display.



Item	Name	Description
6.	Stops Recording	Stops manual recording of the displayed streams.
7.	Previous Page	Allow the user to sequence through the available cameras. If the display is in 1-Up mode the cameras are sequenced in order with each click of Next and Previous Page elements. If the first camera loaded was Camera 5, pressing the Next Page button will advance back to Camera 1 and then each successive Next Page button click will advance to Camera 2, 3, 4 etc. If the display is in a multi-up display, pressing next will sequence through numerical groupings (in 4-Up, Cameras 1-4, 5-8 etc.)
8.	Next Page	
9.	Audio	If the camera is capable of supporting audio and audio is enabled for that camera on the TVN 20, the user can turn on audio. Clicking the audio key brings up the audio volume control
10.	Full-screen	The display can be expanded to screen by pressing the Expand button in the upper right hand corner of the display.
11.	PTZ Controls	The current version of the TVN 20 does not support PTZ control. This will become available in a subsequent firmware release. Please check with your Interlogix representative or business partner for the latest firmware capabilities.
12.	Picture Controls	These camera controls are only available for select IP Cameras, Please see the IP Compatibility Chart for the listing of cameras that support this feature.

# Playback Browser Page

Figure 31: Playback Browser Page



Table 5: Playback Browser features

Item	Name	Description
1.	Connection Tree	The left hand panel shows the configured IP cameras on the TVN 20. Clicking on an individual camera's arrow icon will load it into the current display window.
2.	Playback Controls	Play/Pause, Stop, Frame Reverse, Frame Advance, Fast Forward
3.	Video Timeline	A graphical display of the selected video
4.	Snapshot	Takes a snapshot of the currently highlight camera and saves it to the local browser PC.
5.	Save	Saved the selected video to the HDD.
6.	Audio	Displays a Volume control slider if audio is available.
7.	Expand Screen	The display can be expanded to screen by pressing the Expand button in the upper right hand corner of the display.
8.	Recording Mode LEDs	Indicates a Scheduled Recording or Alarm Recording. Schedule Recording (Time-lapse) video is in blue and Motion or Alarm Input recording is in Red.

Item	Name	Description
9.	BackUp Button	This button allows the User to backup video segments on the TVN 20 to a USB 2.0 and above memory stick that can be plugged directly into the TVN 20. The BackUp process can include downloading a copy of the TVN 20 Mini-Player.
10.	Down Button	This button allows the User to copy video segments from the TVN 20 to the local PC.
11.	Go to Button	Click the Go To button to enter a specific time to go to for playback.
12.	Day and Time Search	Day Search: Select the Date to view video from and press the Search icon. Day and Time Search: Select the <b>Date</b> to view video from and click the Go To button to enter a specific time to go to for playback.
13.	Channel Status	During playback, the status display shows the current playback IP camera channel, the date and time of the video in the display and also the playback speed.

# Searching for Video

The process for searching for video is:

- Select the **camera** that you wish to search for video on. Only one camera may be played back at a time.
- Select the **day** you wish to view video (Day-Search) from OR for the specific day enter a **specific time** (Time-Search) to localize the search.
- Press **Search** (or **GO to**, if time range search). The video is loaded in the timeline below the video display window. Schedule Recording (Time-lapse) video is in blue and Motion or Alarm Input recording is in Red.
- The User controls the display via the Playback controls. The available controls are:
  - Play/Pause
  - Stop
  - Fast Forward (multiple steps ...2x, 4x, 8x)
  - Frame Advance

**Note:** Rewind is not supported in the browser.

- The User can also control where playback time is by placing their mouse in the time bar and dragging the time display to the desired placement in the vertical pointer. As the time bar is move across the vertical pointer, the time updates so the user can see the current time under the vertical pointer.

## Day Search

Select the Date to view video from and press the Search icon.

## Day and Time Search

Select the **Date** to view video from and click the symbol to enter a specific time to go to for playback.

After entering the desired time, press the **Go to** button.

# Chapter 2

## NVR Advanced Topics

### Summary

The following sections contain additional detailed information on the TVN 20.

### HDD Configuration & Management

The TVN 20 offers a robust set of configuration options for video storage. Core to this robustness is the ability to partition the hard drives into one or more independent Hard Drive Groups consisting of one or more of the available hard drives. The storage combinations include:

	Recording Type	Description
1	Normal HDD Recording (Unit Default Configuration)	All cameras share the full available hard drive storage on the unit
2	Redundant Camera Recording	Allows specific cameras to be recorded on two different Hard Drive Groups
3	Independent Hard Drive Recording Groups	Specific cameras can be assigned to specific Hard Drive Groups typically in the case where some cameras may need to be stored for different periods of time.

All recording methods have the advantage that if a drive fails, only that drive's data is potential at risk. The unit will continue to record to the other drives without user intervention in the event of one or more hard drive failures.

### Hard Drive Groups

Normally, all hard drives in a system are associated into a single volume or hard drive group. The TVN 20 allows the user to sub-divide the available hard drives into more than one grouping. Any number of hard drives may be configured in each group to the maximum allowed by the device. This allows for specialized recording behaviors as detailed below.

## Normal HDD Recording

This is the default configuration for storage on the TVN 20. All recorded video is stored on a first-in, first-out basis and all drives record video sequentially on the drives. It is important to note that all cameras are stored for the same number of days regardless of the data rate configured for the cameras.

## Redundant Camera Recording

This is a specialized configuration of the hard drives and utilizes the creation of an additional Hard Drive Group. Unlike typical redundancy that duplicates data on the hard drive, the TVN 20 provides camera specific redundancy. In this case, the user defines the specific cameras where the need is to duplicate recording on independent hard drive groups. For example: the system has 16 cameras, but 5 cameras it is desired to provide redundant recording – recording for these specific 5 cameras is duplicated on different Hard Drive Groups.

## Independent Hard Drive Groups

Another specialized configuration of the hard drives supported by the TVN 20 is completely independent hard drive groups. In this instance, for example, in a 16 camera unit:

- Cameras 1-10 are in a hard drive group 1 (HDD Group 1)
- Cameras 11-16 are in hard drive group 2 (HDD Group 2)

Cameras 1-10, for example, only require 14 day storage. However, Cameras 11-16 require 30 days storage. By sizing the number of hard drives in each group to meet the desired storage duration the user can easily meet the recording objective.

## Normal Recording Steps

The default setting for the unit is with all available hard drives configured in a single group shared by all connected cameras. No additional action is needed by the User.

Understanding the HDD Settings options:

Field Title	Description
HDD No.	The row identifies the capabilities, status and options for this specific hard drive
Capacity (MB)	Shows the capacity of the hard drive
Free Space (MB)	If the drive has not been filled yet, it will show available free space in MB. "0" Free Space means the drive is in Overwrite mode (provided overwrite was specified for system recording)

Field Title	Description
Status	<p>Normal or Standby.</p> <p><i>Normal</i> means data is being read/written to the drive.</p> <p><i>Standby</i> means the drive is spun down to save energy since no data is being read/written to the drive.</p>
Type	All hard drives are Local within the box. A future release may support attached eSata drive extension to the box.
HDD Group	Shows which hard drive group the drive is associated with. Up to eight (8) Hard Drive Groups may be defined. Default setting is HDD Group 1
Attribute	<p>The available settings are: Read-Write, Redundant, Read. Normal operation for a drive is <i>Read-Write</i>.</p> <p>Use the <i>Redundant</i> setting if the drive is the destination for duplicate camera recording.</p> <p><i>Read</i> designates the drive as read-only. This setting is only used if there is data on the drive that you do not want to be overwritten or you are setting up a record-till-full and stop operation.</p>

**Figure 32: HDD Settings**

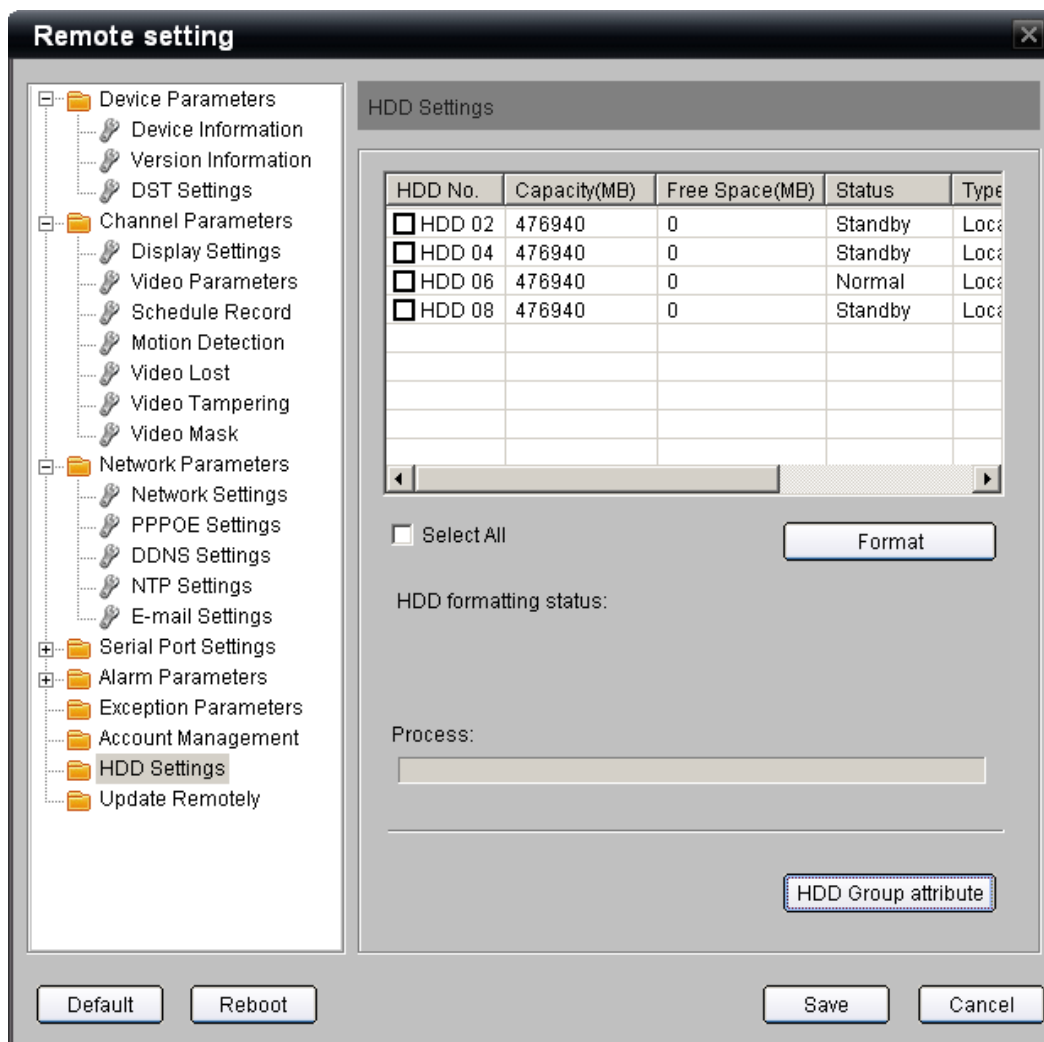
HDD No.	Capacity(MB)	Free Space(MB)	Status	Type
<input type="checkbox"/> HDD 01	476940	0	Normal	Local
<input type="checkbox"/> HDD 03	305245	0	Standby	Local
<input type="checkbox"/> HDD 05	305245	0	Normal	Local
<input type="checkbox"/> HDD 07	305245	0	Normal	Local

**TIP:** The HDD Group and Attribute fields are not normally viewable in the Window unless the scrollbar is moved to the right to expose the fields. Additionally, to view the settings in these fields better, the User will want to expand the field by placing their cursor at the field title left border and dragging to review more data in the field. This is similar to what is done inside of typical spreadsheets.

Please note: If you have changed the default hard drive configuration and wish to restore the normal hard drive configuration, press the **Default** button and this will return your unit to the factory defaults for all settings including the HDD Group configuration. ***None of your existing video data will be lost.***

## Redundant Camera Recording Steps

1. Navigate to the **HDD Settings** page from Main Browser Page: Click **Config** > under **Remote Config** area, select **Configuration parameters** and then select the **HDD Settings** option in the Navigation window



2. Click on the checkbox for the desired Hard Drive that you want to make the redundant drive.
3. Select the **HDD Group** field and select a new HDD Group number from the one defined for the normal drive (typically **HDD Group 02**).



HDD Settings				
(MB)	Status	Type	HDD Group	Attribute
	Standby	Local	HDD Group 02	Read-Write
	Standby	Local	HDD Group 01	Read-Write
	Normal	Local	HDD Group 02	Read-Write
	Standby	Local	HDD Group 03	Read-Write
			HDD Group 04	
			HDD Group 05	
			HDD Group 06	

4. Select the Attribute field from the drop down and select Redundant.

HDD Settings				
(MB)	Status	Type	HDD Group	Attribute
	Standby	Local	HDD Group 02	Redundant
	Standby	Local	HDD Group 01	Read-Write
	Normal	Local	HDD Group 01	Redundant
	Standby	Local	HDD Group 01	Read only

5. Press the HDD Group attribute button near the bottom of the page this will open a dialog box where you can define which cameras will be redundantly recorded on the selected drive group.
6. Select the Redundant Hard Drive Group number (HDD Group 02).  
Select the checkbox for each of the cameras to be redundantly recorded.  
**Note:** Make sure the same cameras are also checked for HDD Group 01.

#### HDD Group 02 Redundant Drive(s) View

(Cameras D2, D3, D4, D8, D9 are checked for redundant recording)



#### HDD Group 01 View

(Make sure that the same cameras (D2, D3, D4, D8, D9) are also checked for recording)



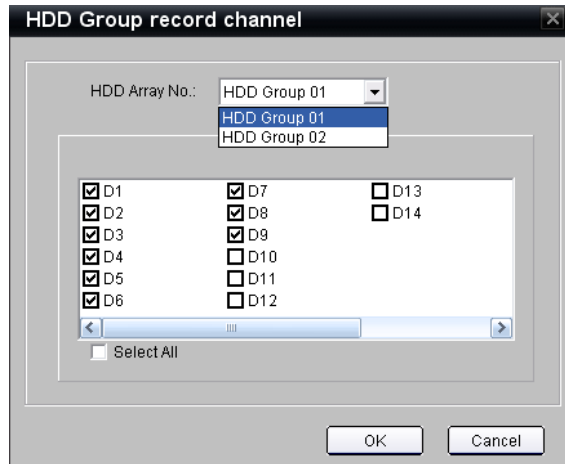
7. Press **Ok** which will return you to the previous screen.
8. Press **Save** to save your settings.

#### Independent Hard Drive Group Steps

1. Navigate to the HDD Settings page from Main Browser Page: Click **Config** > under **Remote Config** area, select Configuration parameters and then select the **HDD Settings** option in the Navigation window.
2. Click on the checkbox for the first hard drive that you want to make an independent storage group from the main HDD Group 1.
3. Select the **HDD Group** field and select a new HDD Group number from the one defined for the normal drive (typically **HDD Group 02**).
4. Make sure the **Attribute** field for the for the selected HDD group from the drop down is set to **Read-Write**.
5. Repeat this process (Steps 2-4) for each additional hard drive that you want to assign to this group.
6. Press the HDD Group attribute button near the bottom of the page this will open a dialog box where you can define which cameras will be assigned to this independent recording hard drive group.
7. Select **HDD Group 01** from the drop-down and check the cameras required to be recorded by this group.

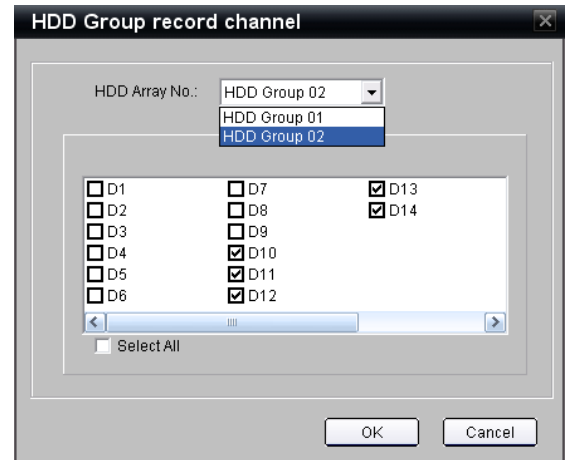
#### HDD Group 1 View

(Cameras D1-D9 are checked for recording to HDD Group 1)



#### HDD Group 2 View

(Cameras D10-D14 are checked for recording to HDD Group 2)



Select **HDD Group 02** from the drop-down and check the cameras to be recorded in this group.

**Note:** Whenever you add a camera by default it is included with HDD Group 1.

8. Press **Ok** which will return you to the previous screen.
9. Press **Save** to save your settings.
10. Repeat steps 2-10 for each additional Hard Drive Group you wish to create.

### Read Only Attribute

By changing the hard drive attribute to **Read** only, the specified drive can no longer be written to and the video stored there will remain until the drive is formatted or the **Read-Write** attributed is applied.

### Formatting Drives

Typically the only reason to format a drive is when you want to erase all video on the drive or as part of a troubleshooting tip to verify if a drive is faulty.

From the HDD Settings page select the checkbox for each drive that you wish to format or the **Select All** checkbox if you wish to reformat all drives. Then press the **Format** button. The **HDD formatting status** area will show the status of the reformatting process. Once the process is complete a notification window will be displayed.

## Drive Replacement

If a drive needs to be replaced, the replacement part number is:

TVN-20XX-HDD-2T.

This part number includes the drive and the drive caddy. The delivered drive is formatted and ready to be inserted into the unit.

---

**WARNING:** Make sure that the TVN 20 is powered OFF, BEFORE removing or replacing drives.

---

# Account Management (Users)

## Introduction

The Browser supports three types of Users on the system. One administrative User with full rights to the entire system and two additional levels of Users with specific rights to camera and system features. The two additional user categories are:

- Guest
- Operator

These two user groups have a default set of capabilities; however, these can be modified to fit your needs. These capabilities will apply to all users you assign to these user groups. There is only one (1) admin user assigned to a system.

The default Admin login is:

User Name: **admin**

Password: **1234**

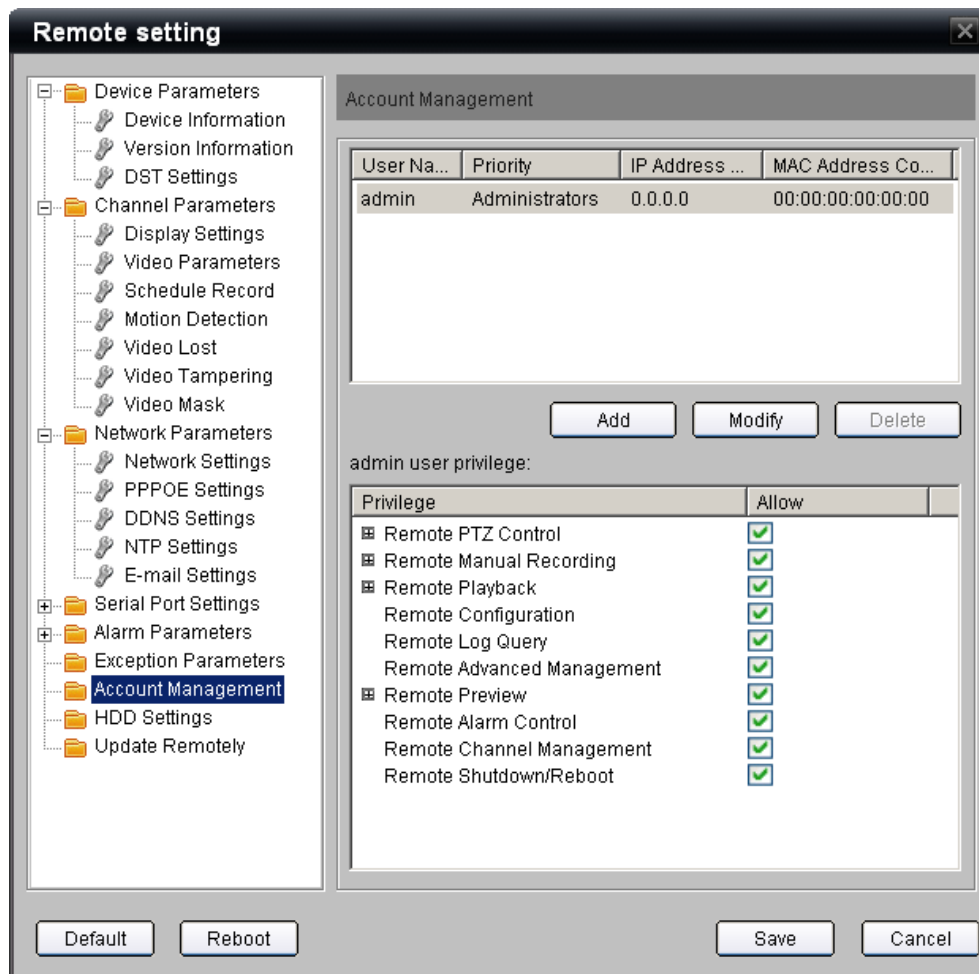
---

**Caution:** You can change the default **admin** user's password. However, if you are using TruVision Navigator software, the device login user and password is the admin account defined on the TVN 20. If you change the default password on the TVN 20, you must make sure TruVision Navigator also uses the same password.

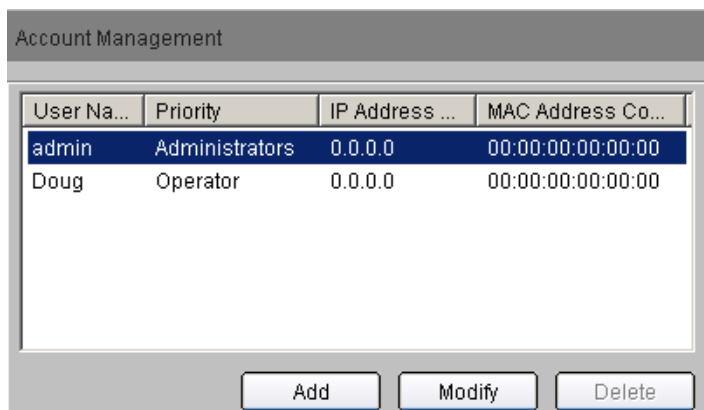
---

Account Management is found under CONFIG>Remote Config>Configuration parameters>Account Management.

Figure 33: Remote setting window



The created users are found displayed in the top window of the display:



The lower section shows the rights established for the highlighted user:

admin user privilege:

Privilege	Allow
<input checked="" type="checkbox"/> Remote PTZ Control	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Remote Manual Recording	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Remote Playback	<input checked="" type="checkbox"/>
Remote Configuration	<input checked="" type="checkbox"/>
Remote Log Query	<input checked="" type="checkbox"/>
Remote Advanced Management	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Remote Preview	<input checked="" type="checkbox"/>
Remote Alarm Control	<input checked="" type="checkbox"/>
Remote Channel Management	<input checked="" type="checkbox"/>
Remote Shutdown/Reboot	<input checked="" type="checkbox"/>

## Adding Users

To Add a new user:

Press the **Add** button which will bring up the **User Information** window.



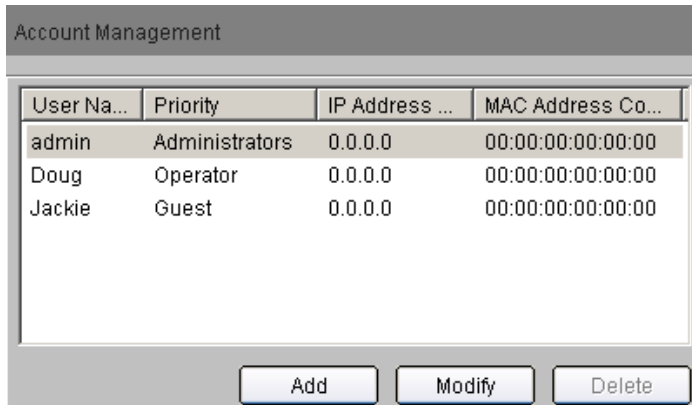
The 'User Information' dialog box contains the following fields and controls:

- User Name:** A text input field.
- Password:** A text input field.
- Confirm Password:** A text input field.
- Priority:** A dropdown menu currently set to 'Guest'.
- IP Address Combine:** A text input field showing '0 . 0 . 0 . 0'.
- MAC Address Combine:** A text input field showing '00:00:00:00:00:00'.
- Example:** Below the MAC field, it says 'eg: d0:40:30:41:03:a0'.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom right.

1. Enter the new users name at the **User Name** field.
2. Enter and confirm the Password assigned to that user.
3. Define the Priority (user group). The available choices are Guest or Operator.
4. Optional security feature allows the user account to be bound to either a specific IP address or a specific computer based upon MAC address. If an IP address is entered, the user can only sign on from a computer with that

specific IP address. If the user account is bound to the MAC address, the user can only sign on from a computer with that specific MAC address.

Press **OK** to return to the main **Account Management** page.



The screenshot shows a window titled "Account Management". Inside, there is a table with four columns: "User Na...", "Priority", "IP Address ...", and "MAC Address Co...". The table contains three rows of data. Below the table are three buttons: "Add", "Modify", and "Delete".

User Na...	Priority	IP Address ...	MAC Address Co...
admin	Administrators	0.0.0.0	00:00:00:00:00:00
Doug	Operator	0.0.0.0	00:00:00:00:00:00
Jackie	Guest	0.0.0.0	00:00:00:00:00:00

5. For each User group define what privileges and system capabilities they can access via the Privileges section (for more detail on these options, please see below)
6. After making the desired selections press **Save**.

User Name and Password are case sensitive.

The **Modify** button brings up the User Information page for the specific user should any of the individuals entries need to be updated.

To delete a User, click on the User's row and press **Delete**. Important Note: The admin user cannot be deleted.

## Managing User Rights

The Administrator account has full access to all unit capabilities. There is no ability to restrict the Administrators rights.

For the two types of User groups, the system provides default settings that you can accept or modify as desired to meet your operational goals. The basic difference in the default settings is the Operator can view live (preview) and playback, while Guest can only playback.



Operator		Guest	
Privilege	Allow	Privilege	Allow
Remote PTZ Control	<input checked="" type="checkbox"/>	Remote PTZ Control	<input type="checkbox"/>
Remote Manual Recording	<input checked="" type="checkbox"/>	Remote Manual Recording	<input type="checkbox"/>
Remote Playback	<input checked="" type="checkbox"/>	Remote Playback	<input checked="" type="checkbox"/>
Remote Configuration	<input type="checkbox"/>	Remote Configuration	<input type="checkbox"/>
Remote Log Query	<input checked="" type="checkbox"/>	Remote Log Query	<input checked="" type="checkbox"/>
Remote Advanced Management	<input type="checkbox"/>	Remote Advanced Management	<input type="checkbox"/>
Remote Preview	<input checked="" type="checkbox"/>	Remote Preview	<input type="checkbox"/>
Remote Alarm Control	<input type="checkbox"/>	Remote Alarm Control	<input type="checkbox"/>
Remote Channel Management	<input type="checkbox"/>	Remote Channel Management	<input type="checkbox"/>
Remote Shutdown/Reboot	<input type="checkbox"/>	Remote Shutdown/Reboot	<input type="checkbox"/>











These capabilities are completely modifiable.

### Detail View of User Privileges

“Remote” means that the browser is able to access and control the selected function.

Privilege Name	Description
Remote Playback	Ability for User to conduct video playback from the Browser
Remote Preview	Ability for User to view live video from the Browser
Remote Manual Recording	Ability for User to manually initiate recording on the PC using the Browser
Remote Log Queries	Ability for User to view and inspect the TVN 20's event/system logs from the Browser
Remote Shutdown/Reboot	Ability for User to activate the REBOOT command from the Browser
Remote Configuration	<p>Ability for User to make setting changes under the Configuration parameters area:</p> <ul style="list-style-type: none"> <li>• Device Parameters</li> <li>• Alarm Parameters</li> <li>• Exception Parameters</li> <li>• Account Management</li> <li>• Network Settings</li> </ul> <p>In addition, the ability to add, modify or reset IP cameras is controlled under this option (Remote Config Page).</p>
Remote Advanced Management	Allows User the ability to remotely format the hard drives and configure HDD groups.
Remote Channel Management	Ability for a User to add, delete, change or modify IP camera settings from the main Remote Config page and from the Config Parameters pages.
Remote Alarm Control	Future Use
Remote PTZ Control	Control PTZ from the Browser page

The expand button associated with some of the entries expands to show the configurable options of the selected camera.

Privilege	Allow
 Remote Preview	
D1	
D2	
D3	
D4	
D5	
D6	
D7	
D8	

For each User group you can individually select which cameras may be addressed each user option.

## Advanced Camera Settings

In addition to common IP camera capabilities such as motion detection, depending on the support camera some additional features may be available. If they are available for your particular connected camera, these additional options will be available.

- Video Tamper
- Video Live and Record Masking
- Alarm Input from Camera Event Trigger
- Alarm Input from Camera to Camera Alarm Output

These additional capabilities are explained below:

### Video Tamper

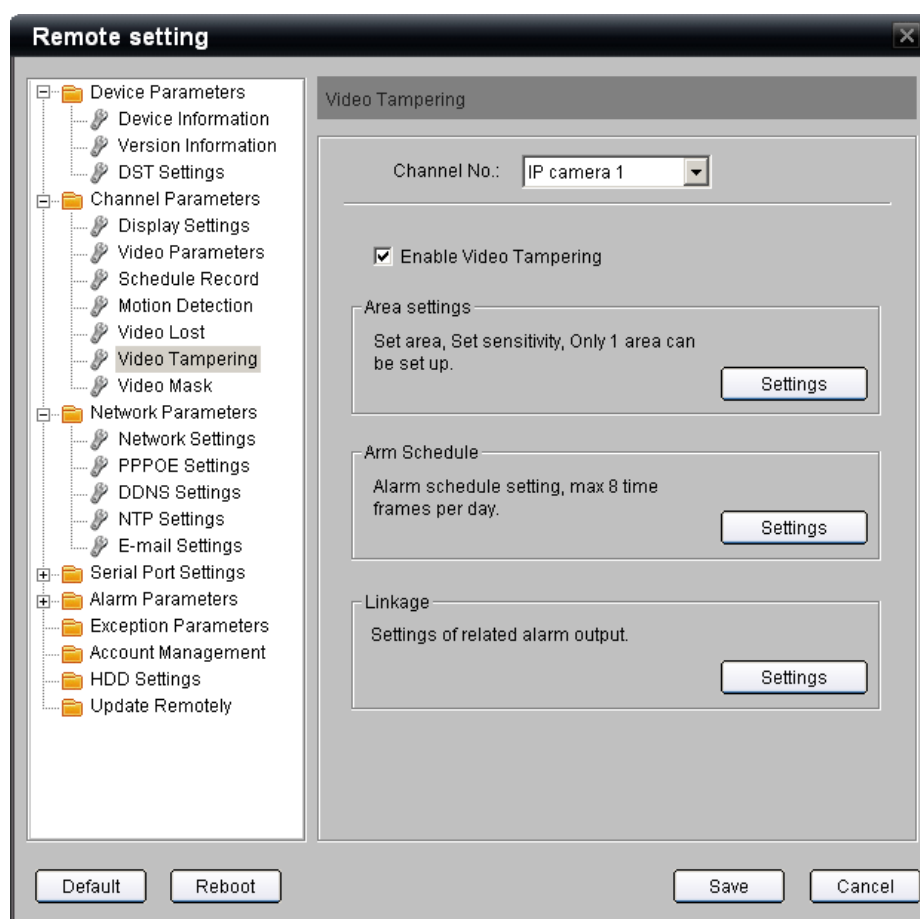
This feature provides means for notification under the following conditions:

- Attempts to shroud, block or obscure the video by means of placing something in front of the camera lens.
- Attempts to “blind” the camera by shining a bright light into the lens.

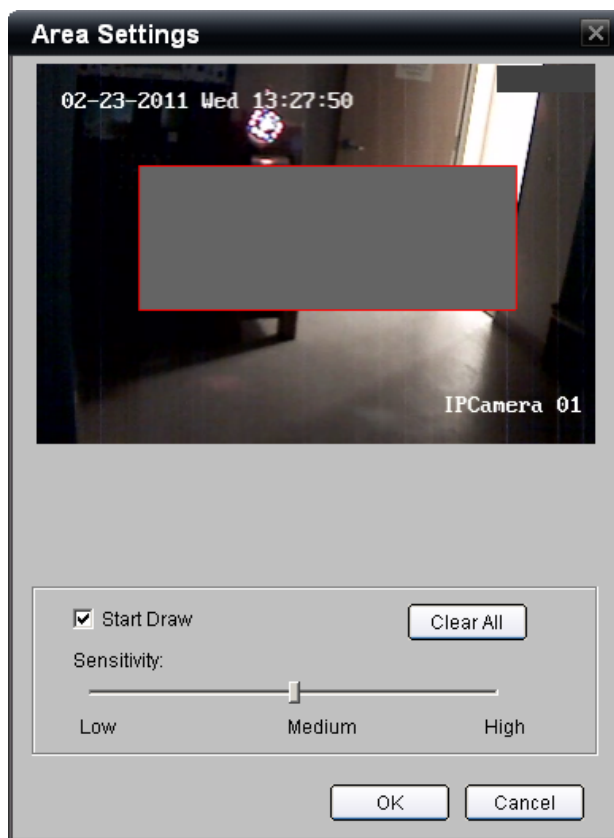
The feature is enabled by defining the area that will detect attempts to inhibit the video. In addition, the feature can be scheduled for when it is active via a weekly schedule, as well as the type of notification response when an incident is detected. These response actions include triggering a buzzer on the TVN 20, local alarm outputs on the TVN 20, Email notification, Notification to Interlogix Navigator software and in special cases activating camera alarm outputs.

The steps to utilize this feature:

1. Select the **Video Tamper** selection from the navigation area



2. Select the desired camera to configure from the **Channel No** drop down list.
3. Click the **Enable Video Tampering** checkbox.
4. Select the **Settings** button from the **Area settings** box.



5. Click the **Start Draw** checkbox and using your mouse select a single area that is in the area of concern for video tamper. The feature will only allow creating a single detection area.  
  
If you are not satisfied with the drawn area, please press the **Clear All** button and start over.
6. Select the desired sensitivity level from the **Sensitivity** control by clicking your mouse at the desired point on the slider bar. The standard setting is **Medium**.
7. Click **OK** to return to the main configuration page for Video Tamper.
8. The default enabled schedule for Video Tamper is 7/24. If you want to enable the feature based upon a specific schedule press the **Settings** button from the **Arm Schedule** area.

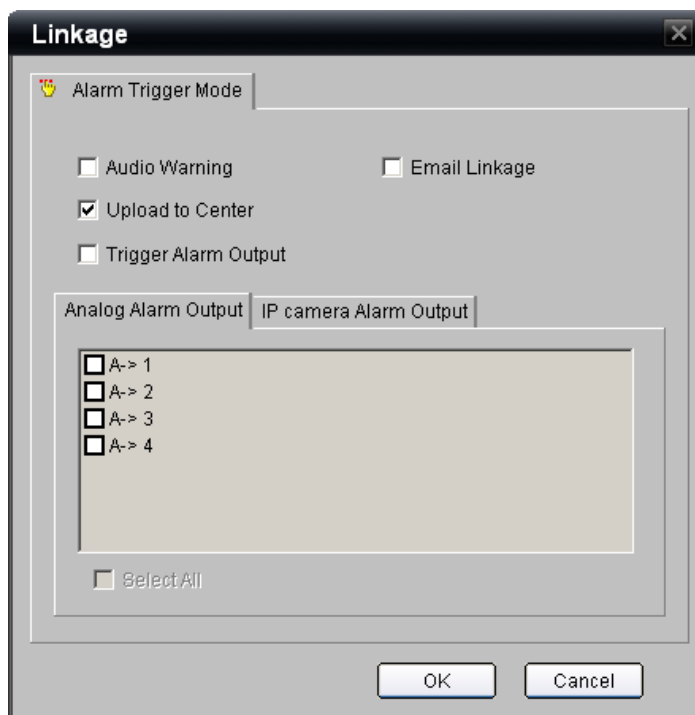
The image shows a software dialog box titled "Arm Schedule". At the top, there is a "Weekday:" label followed by a dropdown menu currently showing "Monday". Below this is a list of eight time periods, each with a checkbox and two time pickers (HH:MM). Period 1 is checked and has a time range from 00:00 to 24:00. Periods 2 through 8 are unchecked and have a time range from 00:00 to 00:00. At the bottom of the list, there is a "Copy to:" label followed by a dropdown menu showing "Whole Week" and a "Copy" button. At the very bottom of the dialog are "OK" and "Cancel" buttons.

Period	Enabled	Start Time	End Time
Period1	<input checked="" type="checkbox"/>	00:00	24:00
Period2	<input type="checkbox"/>	00:00	00:00
Period3	<input type="checkbox"/>	00:00	00:00
Period4	<input type="checkbox"/>	00:00	00:00
Period5	<input type="checkbox"/>	00:00	00:00
Period6	<input type="checkbox"/>	00:00	00:00
Period7	<input type="checkbox"/>	00:00	00:00
Period8	<input type="checkbox"/>	00:00	00:00

Copy to: Whole Week [Copy]

[OK] [Cancel]

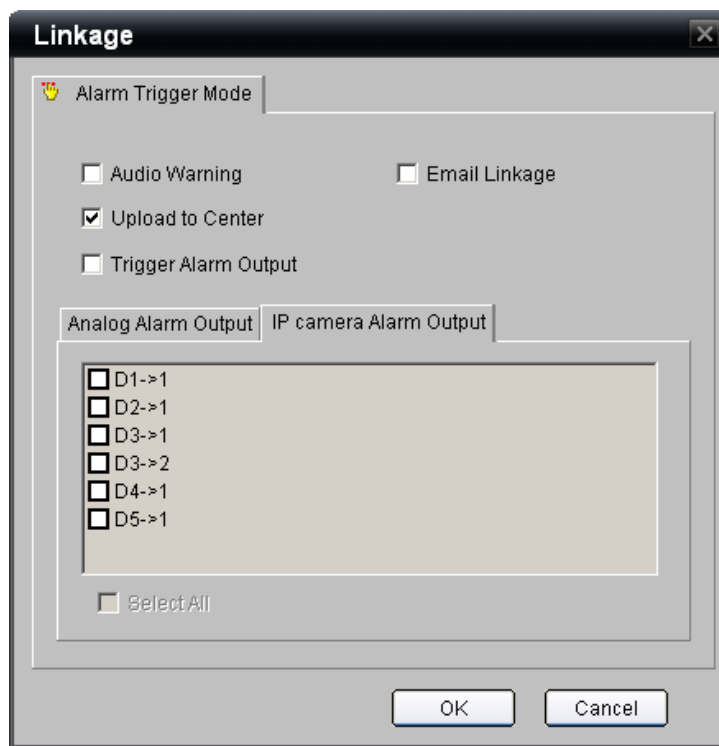
9. Follow the same procedure as instructed for setting up schedules for Video Motion detection which includes:
  - Selecting the Day.
  - Establish up to 8 time periods per day for when detection is enabled.
  - Copy the days schedule to other days or to the full week or weekend.
  - Clicking **OK** once you have the settings you wish and return to the main area for Video Tamper setup.
10. Determine what notification steps are to occur upon event trigger by selecting **Settings** button from the Linkage area on the main Video Tamper page.



11. Under the Linkage window select the actions you want taken in response to detection (multiple actions may be selected):

- **Audio Warning** to trigger a buzzer on the unit when there is an event.
- **Upload to Center** should be checked for Interlogix Navigator notification (uncheck if you do not wish this event reported to Navigator).
- **Trigger Alarm Output** to fire one or more of the on-the-box alarm outputs.
- **Email Linkage** if you want the event to send off an email based upon your email settings.
- If **Trigger Alarm Output** is enabled, the user can switch one or more of the alarm outputs (on-the-box) under the **Analog Alarm Outputs** tab (A->1 thru A->4).

12. For special configurations, some of the supported cameras allow any video tamper event from any enabled camera to trigger a camera's built-in alarm output. If your cameras support this capability and you need to use the alarm outputs, press the **IP camera Alarm Output** tab.



- The available camera alarm outputs will be listed where “D1” is the channel number of the IP camera connected to this TVN 20 and “->1” is the specific alarm output for that IP camera. Multiple outputs on different cameras may be enabled.

**Note:** Mapping an event to camera alarm outputs is only available for IP cameras connect to that specific TVN 20.

13. Once all desired event actions have been configured press **OK** to return to the main video tamper configuration page.
14. To Save your settings press the **Save** button
15. Repeat this process for each additional camera you wish to configure.

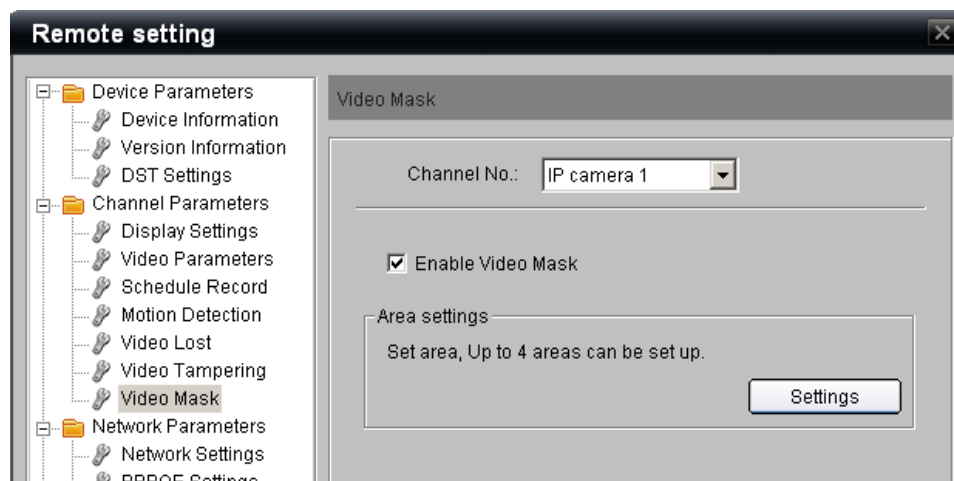
## Video Masking

This feature creates a blocked out area within the camera field of view that can be masked off and will not be viewable either during live or recorded views. This feature is used where privacy considerations are necessary especially when cameras are deployed in public settings. Up to four areas per camera may be masked.

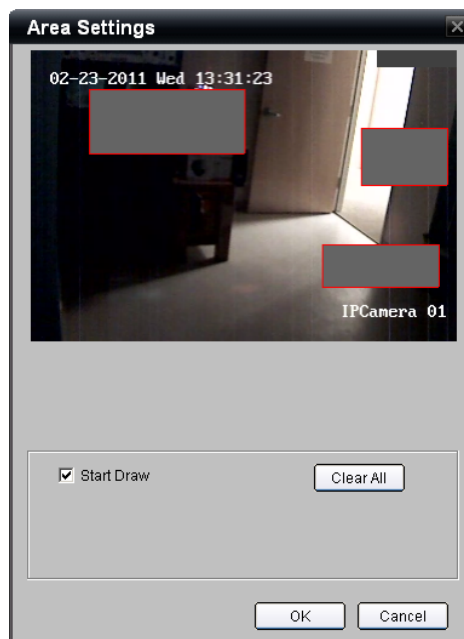
To utilize this feature:

1. Select the **Video Mask** selection from the navigation area





2. Select the desired camera to configure from the **Channel No** drop down list
3. If the **Enabled Video Mask** option is accessible, then the camera supports the feature within the TVN 20. Click the **Enable Video Mask** checkbox
4. Select the **Settings** button from the **Area settings** box



5. Click on the **Start Draw** checkbox to enable setting the video mask area.
6. Using your mouse, click and drag a box for the area to be masked. Release the mouse when you have completed your masking region. Repeat this process for each additional area in the camera's field of view.
7. When you have completed defining your mask areas, Press **OK** to return to the main page for video masking.

8. From the main Video Mask area, click **Save** at the bottom of the page to save your settings.
9. Repeat this process for each additional camera you wish to configure with video masking.

## IP Camera Digital Alarm Input & Output Actions

Many IP Cameras have on-board alarm inputs and output. The TVN 20, depending on the Make and Model of the IP camera supports the ability for:

- An IP Camera digital alarm input activation or motion event trigger on one camera to trigger an alarm output on a different IP camera
- TVN 20's alarm inputs on TVN 20 to activate outputs on an IP camera
- Digital IP Camera alarm input activation can initiate PTZ camera presets, patterns and patrols

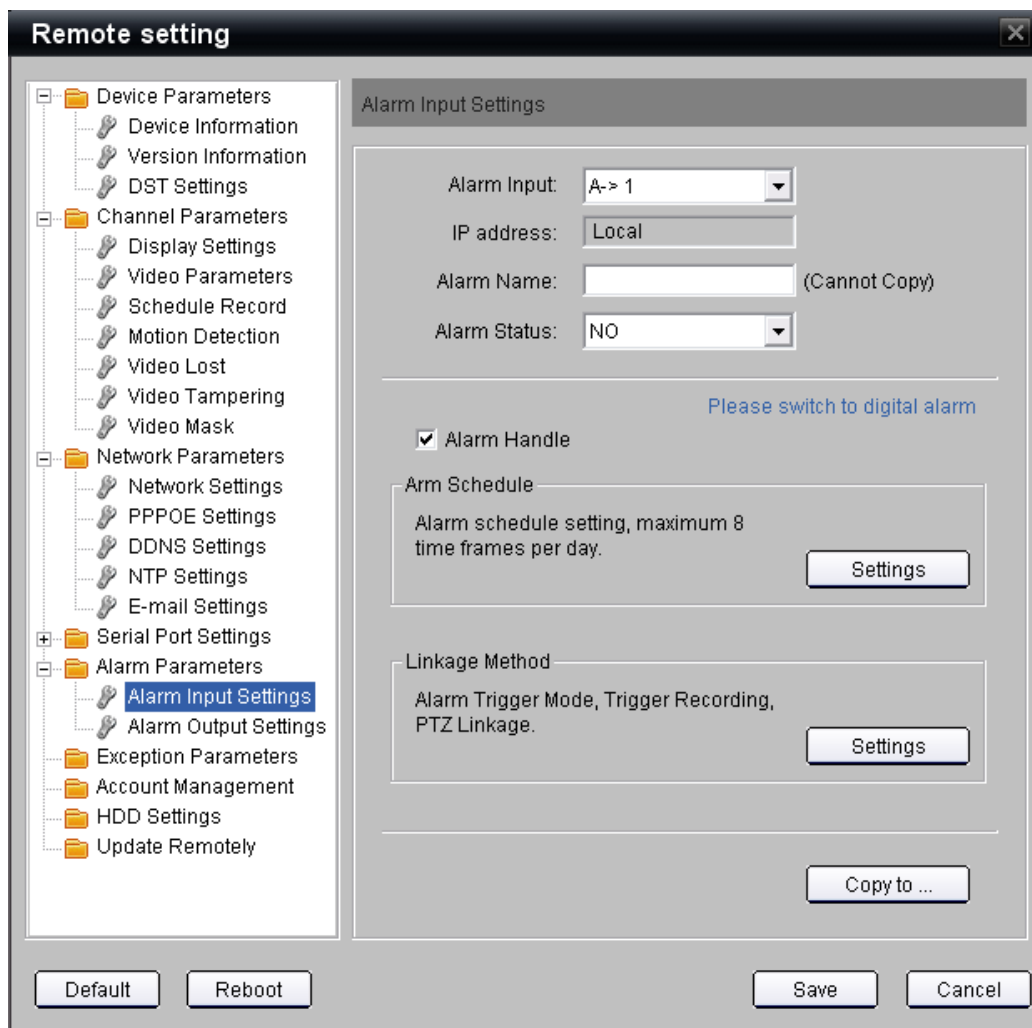
For a listing of IP Cameras that support these capabilities please see the section in the Appendix for the current listing at the time of this manual printing. We recommend that you visit either of these sites for the latest listing based upon the latest firmware available in the unit:

[www.interlogix.com/videoupgrades](http://www.interlogix.com/videoupgrades)

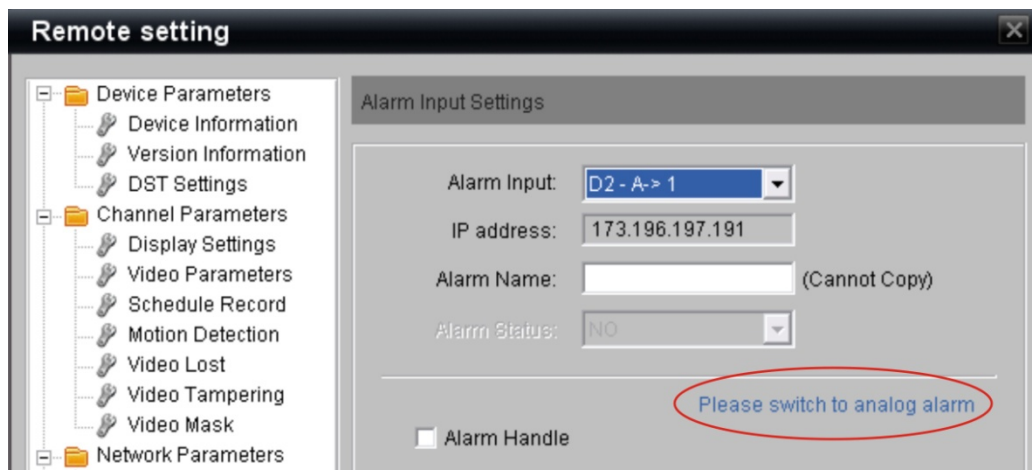
[www.utcssecurityproductspages.eu/videoupgrades/](http://www.utcssecurityproductspages.eu/videoupgrades/)

## Configuring Digital Alarm Inputs (from the IP Camera)

To configure digital alarm inputs from supported IP cameras via the TVN 20 browser; navigate to **Config > Configuration parameters> Alarm Input Settings** (under **Alarm Parameters** folder). The default view shows the on-the-box (analog alarm inputs) view.

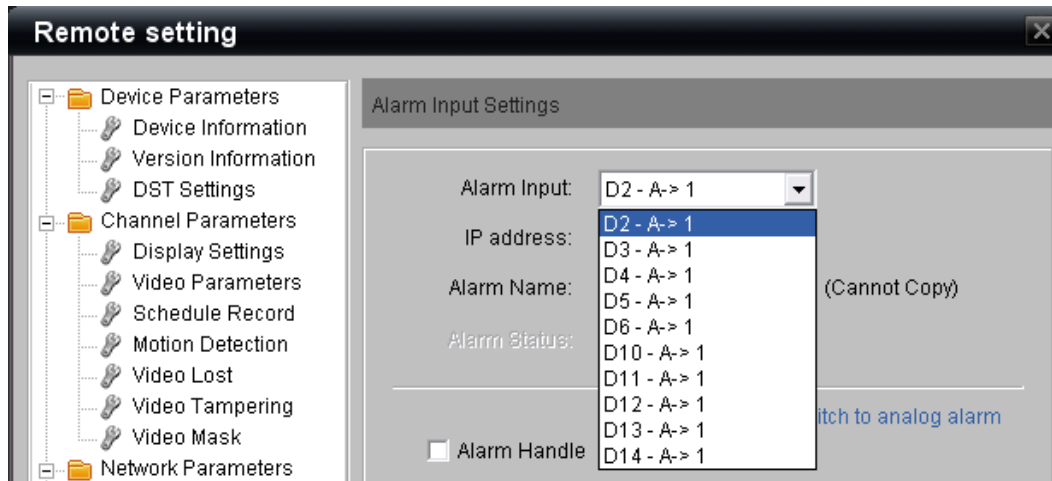


1. Click on the text **"Please switch to digital alarm"** to change the view to IP camera digital inputs.



Please note that the text now shows “Please switch to analog alarm” and that Alarm Input field shows an entry such as “D2 – A->1” which identifies that it is a digital input (D) on IP Channel (2) and that the element is an alarm input (A) and it is IP camera input (1).

2. From the Alarm Input field, select from the drop-down the IP camera input you wish to configure.



3. Optionally, in the Alarm Name field you can name the alarm input. This name is used for the logs and is captured by the Interlogix TruVision Navigator software.
4. Select the **Alarm Handle** checkbox to enable the selected input for configuring event response behaviors.
5. In the **Arm Schedule** area select **Settings** to configure the day or weekly schedule for enabling the digital alarm input. By default when the digital input is enabled (Alarm Handle Checked), the digital input is automatically enabled 24x7 (24 hours a day, every day).

**Arm Schedule**

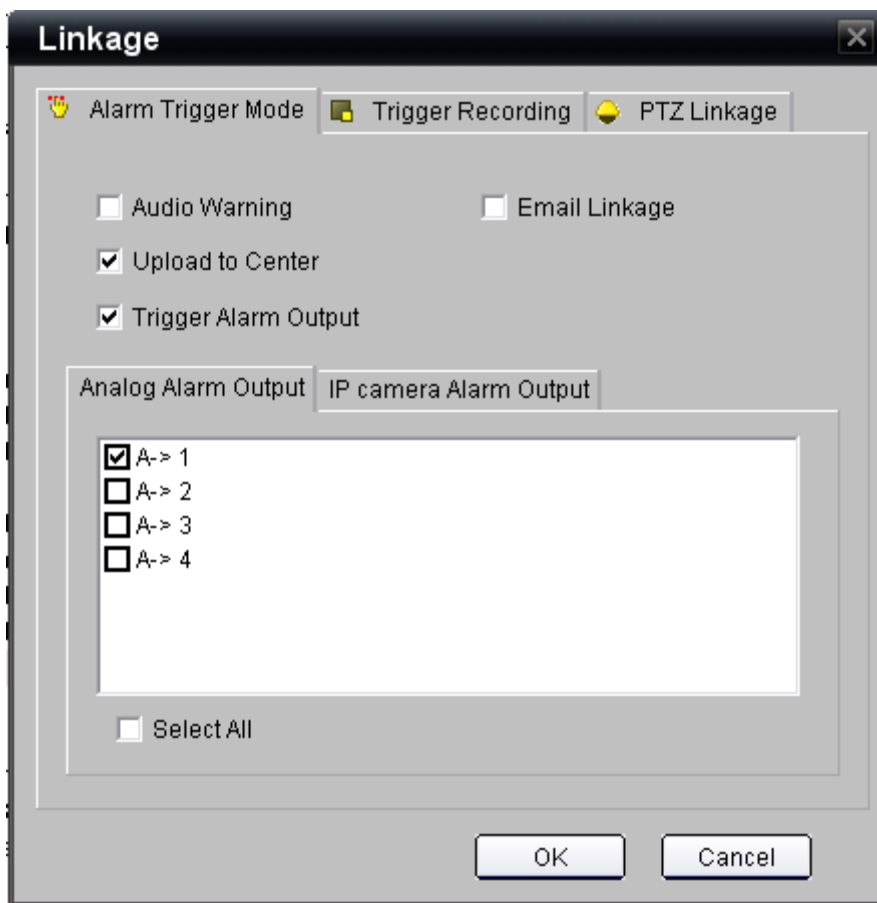
Weekday: **Monday**

Period	Start	End
<input checked="" type="checkbox"/> Period1	0 : 0	24 : 0
<input type="checkbox"/> Period2	0 : 0	0 : 0
<input type="checkbox"/> Period3	0 : 0	0 : 0
<input type="checkbox"/> Period4	0 : 0	0 : 0
<input type="checkbox"/> Period5	0 : 0	0 : 0
<input type="checkbox"/> Period6	0 : 0	0 : 0
<input type="checkbox"/> Period7	0 : 0	0 : 0
<input type="checkbox"/> Period8	0 : 0	0 : 0

Copy to: **Whole Week** **Copy**

**OK** **Cancel**

6. Similar to setting recording schedules, the **Arm Schedule** page allows you to designate a specific schedule for one day and **Copy** it to a **Whole Week** or to other days of the week. The steps are:
  - a. Define one or more On/Off periods using the **Period** rows. Up to 8 On/Off periods can be defined for a single day.
  - b. Use the **Copy to** drop-down to select the Whole Week or another day of the week.
  - c. Pressing the **Copy** button completes the copy function for the On/Off periods defined above.
  - d. Repeat steps 6a-6c for each additional day to copy the schedule to unless **Whole Week** copy was used.
7. When you have the schedule complete select **Ok** to return to the main Alarm Inputs page.
8. If you want the TVN 20 to take specific actions in response to a IP camera digital input, select the **Settings** button in the **Linkage** area to customize the event notification.



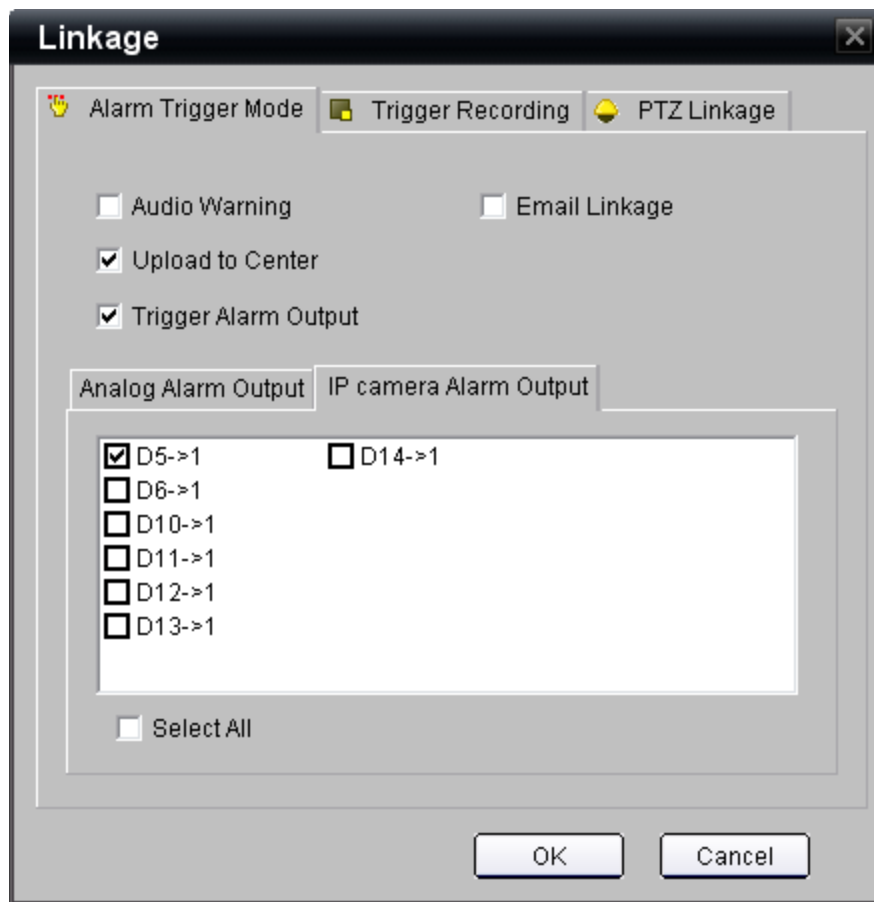
9. The User can select what type of event action from the available options:
- **Audio Warning** to trigger a local unit audible on the TVN 20 upon an event (Unchecked by Default)
  - **Upload to Center** should be checked for Interlogix TruVision Navigator notification (Checked by Default)
  - **Trigger Alarm Output** to fire one or more of the on-the-box alarm outputs (Unchecked by Default) or digital alarm outputs available on specific IP camera models
  - **Email Linkage** if you want the event to send off an email in response to an event.

If you select the **PTZ linkage** tab, you can define for each specific PTZ camera a pre-programmed PTZ camera Preset, Patrol or Pattern.

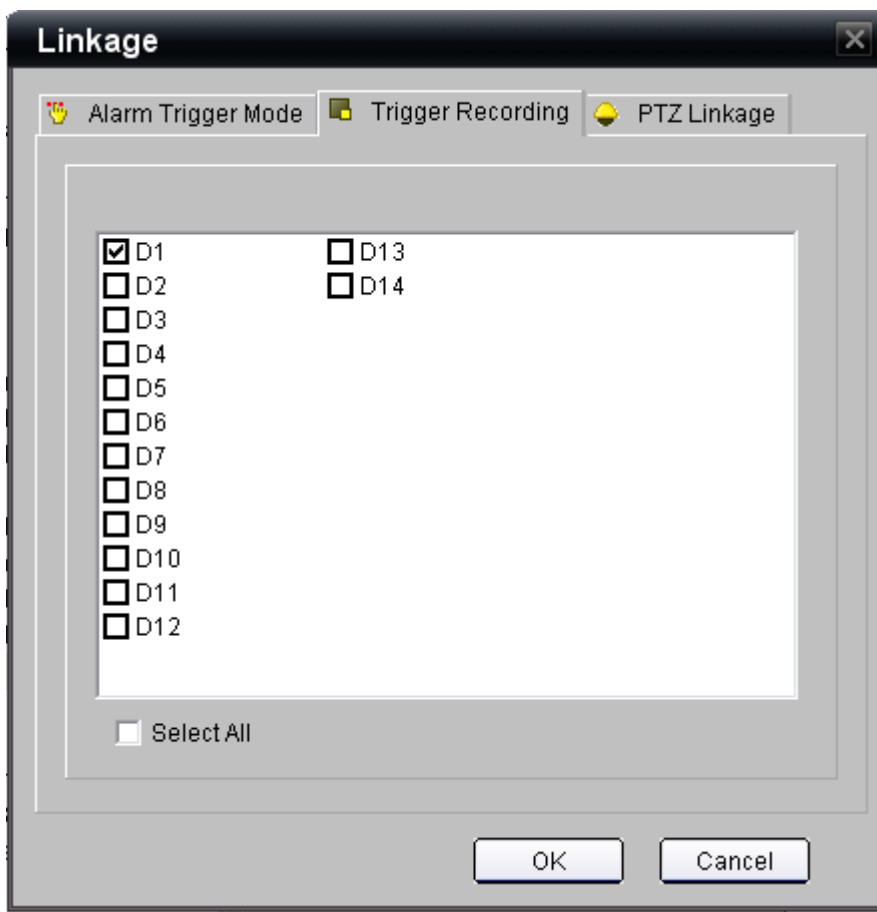
**Note:** The setting of presets, patrols and patterns are a function of the specific IP camera manufacturer's web page.

10. To activate an analog alarm output (on the TVN 20) select the desired alarm output in the **Analog Alarm Output** tab.

11. If there are no other settings you wish to configure click **Ok** to return to the main **Alarm Input Settings** page.
12. To activate an available IP Camera Digital Alarm Output, select the **IP Camera Alarm Output** tab.

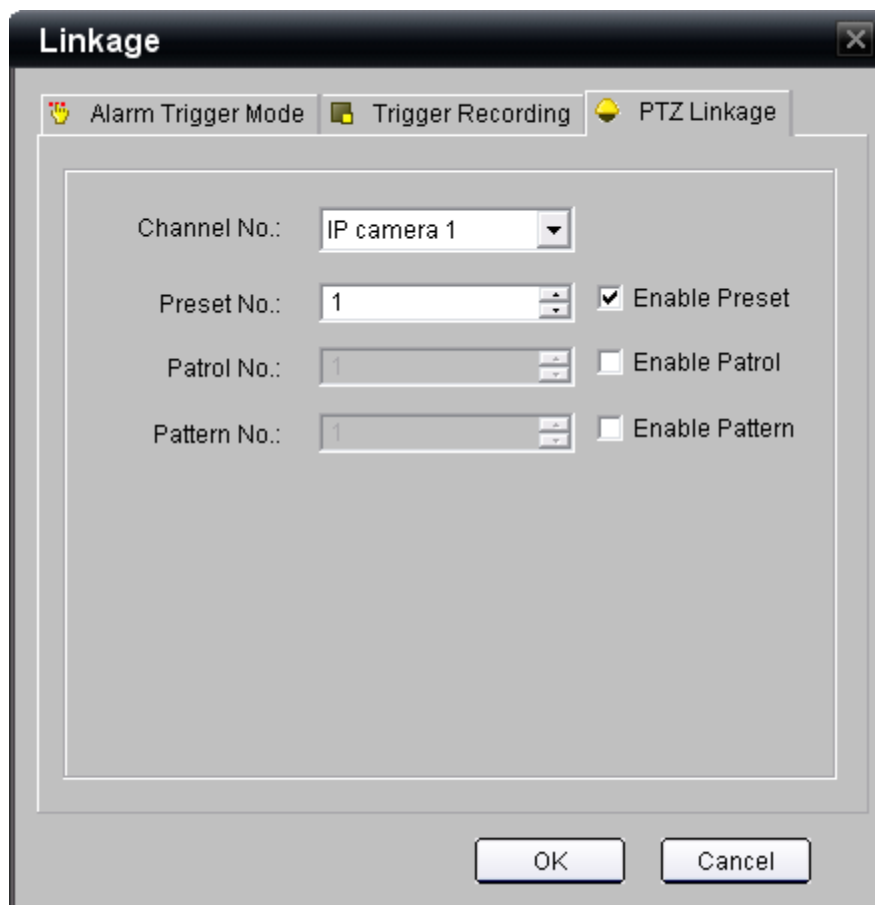


13. The display will show all available IP camera outputs from supported IP Cameras, select one or more of the outputs needed to meet the project requirements.
14. To trigger recording based upon activation of the IP Camera Digital Input, select the **Trigger Recording** tab at the top of the window.
15. The display will show all available IP cameras for recording, select one or more of the cameras to be recorded upon the event trigger.



16. If supported PTZ cameras are included, the digital alarm input can also activate a camera preset
17. Click **Ok** to return to the main Linkage page
18. To configure an PTZ camera response, click on the **PTZ Linkage** tab at the top of the page





19. Select the PTZ IP Camera from the drop down list and enable the preset, patrol or pattern defined via the Manufacturer's IP PTZ web page.
20. Click **Ok** to return to the main **Alarm Input Settings** page
21. Repeat steps 1-20 for each additional Digital Alarm Input from the IP Camera to set.
22. After all Digital Inputs are programmed, from the main Alarm Inputs page click **Save** (at the bottom) to update the TVN 20.

## Managing Alarm Outputs (TVN 20 and IP Camera)

The TVN 20 provides several useful configuration options that allow flexibility in managing when and how alarm outputs behave. Two types of outputs can be configured from the TVN 20:

- Four (4) built-in alarm outputs on the TVN 20 unit
- The alarm outputs on an IP camera that is compatible with the TVN 20

For a listing of compatible IP cameras, please refer to the section in the Appendix or [www.utcssecurityproductspages.eu/videoupgrades/](http://www.utcssecurityproductspages.eu/videoupgrades/) for the latest updates.

These elements include:

1. The ability to schedule when an alarm output can be activated on the basis of a daily or weekly schedule.
2. Define how long the alarm output is triggered during a valid event.

This capability applies to the four analog alarm outputs on the TVN 20 unit and to any compatible IP camera's built-in alarm outputs.

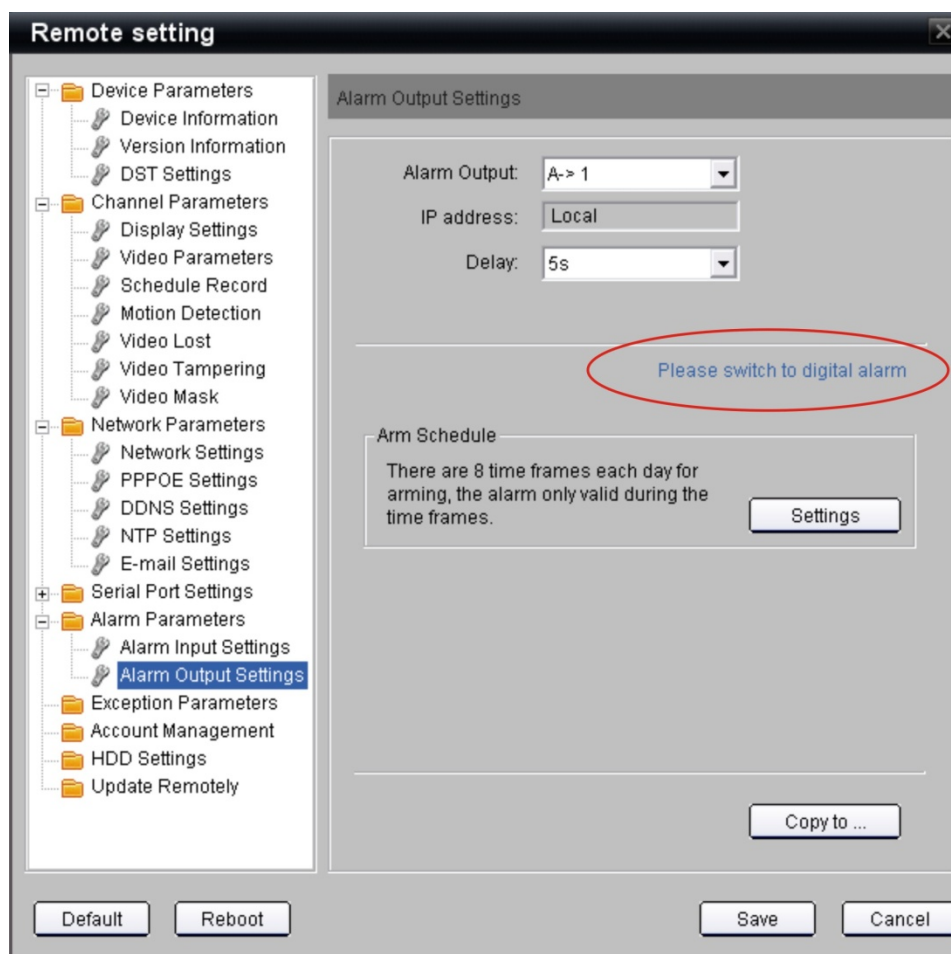
The default setting for any enabled alarm output is:

1. 5 second trigger time.
2. Any alarm output is enabled 24x7.

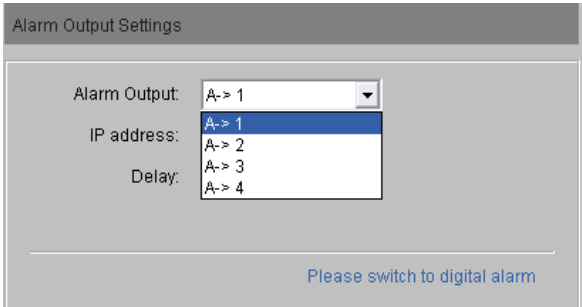
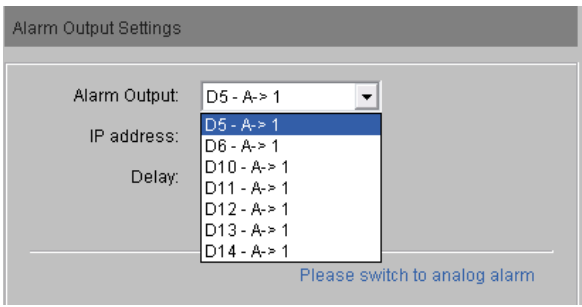
**Important Note:** An alarm output is enabled whenever an output action is requested for an alarm input or system event. This section of the TVN 20 configuration parameters only addresses how the alarm output responds when activated.

To change or modify alarm output behavior, navigate to the **Alarm Output Settings** area from the home page of TVN 20 > **Config** > **Configuration parameters** > **Alarm Output Settings** selection (under the **Alarm Parameters** folder)

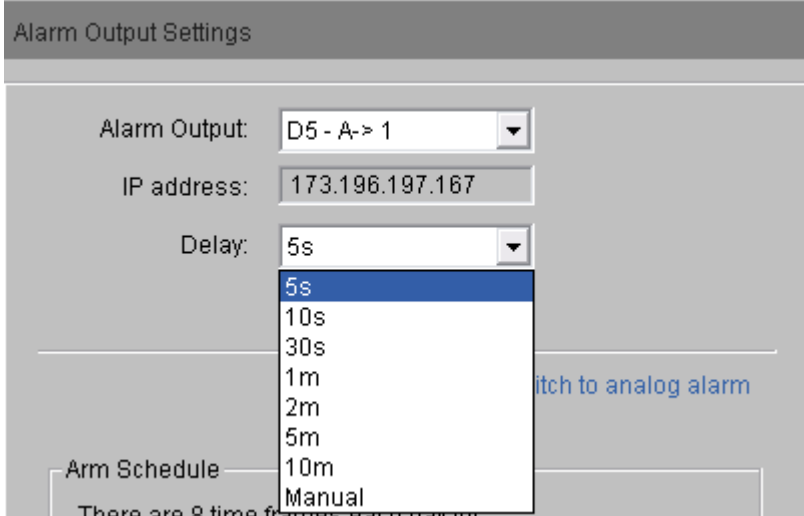
Similar to the alarm inputs the default display shows the four (4) analog outputs on the TVN 20 unit.



To access the settings for the digital alarm outputs on the IP camera, click on the text **“Please switch to digital alarm”**.

Analog Alarm Output options	Digital Alarm Output options
	
<p>Analog Outputs are shown as:</p> <p><b>A</b> = Analog</p> <p>-&gt; <b>1</b> = TVN 20 Alarm Input #1</p>	<p>Digital (IP Camera) Alarm Outputs are shown as:</p> <p><b>D</b> = Digital</p> <p><b>#</b> = IP Camera Channel Number on the TVN 20</p> <p>- <b>A-&gt; 1</b> = Camera Alarm Output #1</p>
<p><b>IP Address</b> field will be <b>Local</b> for on the unit outputs</p>	<p><b>IP Address</b> field will show the IP address for the selected digital alarm output</p>

The **Delay** field identifies how long the output will be triggered following an activating event. The available values, regardless if the alarm output is analog or digital area, are:



If the alarm output needs to follow a specific enabled/disabled schedule, from the Arm Schedule area click settings to configure a specific schedule of up to eight (8) enabled/disabled periods per day.

**Arm Schedule**

Weekday: Monday

---

<input checked="" type="checkbox"/> Period1	<span>0</span> : <span>0</span> --- <span>24</span> : <span>0</span>
<input type="checkbox"/> Period2	<span>0</span> : <span>0</span> --- <span>0</span> : <span>0</span>
<input type="checkbox"/> Period3	<span>0</span> : <span>0</span> --- <span>0</span> : <span>0</span>
<input type="checkbox"/> Period4	<span>0</span> : <span>0</span> --- <span>0</span> : <span>0</span>
<input type="checkbox"/> Period5	<span>0</span> : <span>0</span> --- <span>0</span> : <span>0</span>
<input type="checkbox"/> Period6	<span>0</span> : <span>0</span> --- <span>0</span> : <span>0</span>
<input type="checkbox"/> Period7	<span>0</span> : <span>0</span> --- <span>0</span> : <span>0</span>
<input type="checkbox"/> Period8	<span>0</span> : <span>0</span> --- <span>0</span> : <span>0</span>

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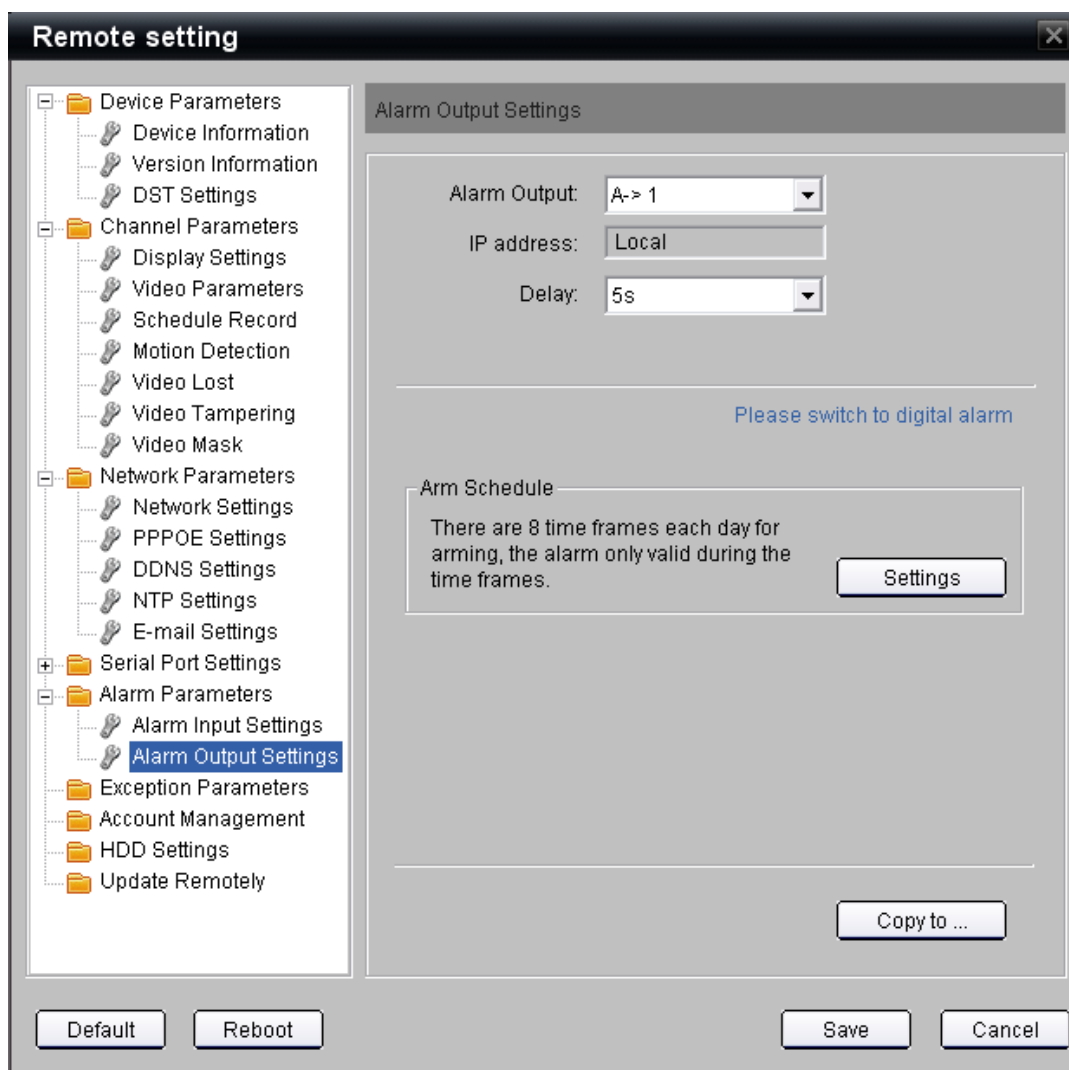
Copy to: Whole Week Copy

OK Cancel

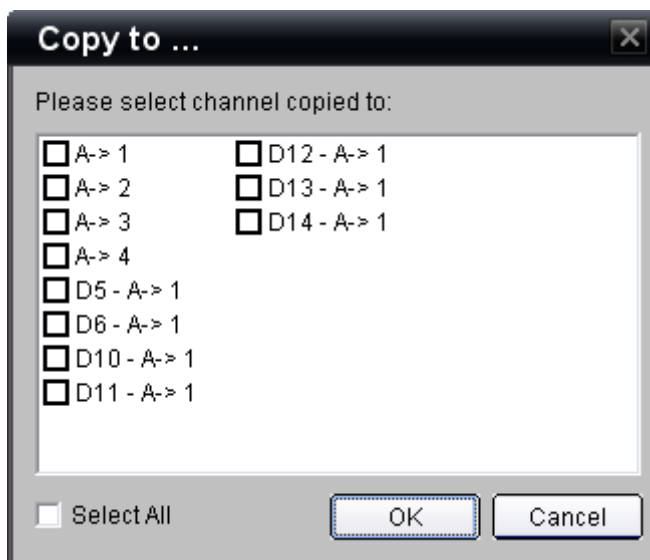
This scheduling follows the same patterns as what was explained under Scheduled Recording. The User can define a unique schedule per day or use the **Copy to** function to select a specific day or the **Whole Week** then press **Copy** to duplicate the settings for that period. To return to the main Alarm Output Settings page click **Ok**.

To save time the TVN 20 allow the User to copy the alarm output settings to more than one output using the **Copy to** function.

From the main **Alarm Output Settings** page, after you have configured one camera or output setting press **Copy to**.



A window will be presented that allows you to select one or more of all available analog or digital alarm outputs that you wish to share the same settings.



Once you have completed your selections, press **Ok** to return to the main **Alarm Output Settings** page.

To commit the changes to the TVN 20 press the **Save** button.

# Email

The TVN 20 can be configured to send an email in response to motion events, alarm input events, any system health monitoring event. The system will allow sending messages to as many as three addresses. The address can even be a distribution list if your mail server supports that ability.

Configuration steps depends on if your mail server requires user authentication (Server Authentication).

The screenshot shows the 'Remote setting' dialog box with the 'E-mail Settings' tab selected. The left sidebar contains a tree view of settings categories: Device Parameters, Channel Parameters, Network Parameters, Serial Port Settings, Alarm Parameters, Exception Parameters, Account Management, HDD Settings, and Update Remotely. The 'E-mail Settings' category is expanded. The main area contains the following fields and controls:

- User Name:** [Text input field]
- Password:** [Text input field]
- Confirm Password:** [Text input field]
- ☒ **Server Authentication**
- Sender/Receiver Details:**

	User Name	Email Address
Sender		
Receiver1		
Receiver2		
Receiver3		
- Delete** button
- SMTP:** [Text input field]
- SMTP Port:** [Text input field with value 25]
- ☐ **Enable SSL**
- Test** button
- Default** button
- Reboot** button
- Save** button
- Cancel** button

## If your mail server requires “Server Authentication”:

1. Check the **Server Authentication** check box (Server Authentication is not enabled by default).
2. Enter your **User Name** and **Password** as required by your mail server. You are expected to **Confirm Password**.
3. Under the Sender line, click in the **User Name** cell and enter the individual who is to receive the notification along with that individual's **Email Address**



by clicking in that cell and entering the correct email address. This may be the same User Name and Password used to access the mail server.

4. You may send notification messages to up to three recipients. Click on each individual cell for **User Name** and **Email Address** for that each individual who is to receive notification.
5. Enter the SMTP (Mail Server) address in the **SMTP** field and enter the **SMTP Port** used for that mail server. Most mail servers are defaulted to the value 25 (this is the default value).
6. If your mail server uses SSL security, please click the **Enable SSL** checkbox.
7. Click **Save**.
8. You can send a test message by pressing the **Test Message** button.
9. Finally, if you need to delete a recipient, simply click on the row for receiver you wish to remove from notification and press **Delete**.

Below is a sample message. The message will include the name of the sender along with identification of which TVN 20 is reporting the message and the specific notification event (Motion Alarm, Alarm Input, Exception Event etc)

From: tvn20 <[user.utcfs@gmail.com](mailto:user.utcfs@gmail.com)>  
Date: 2011/3/22  
Subject: TVN 20: Motion Detected On Channel D5  
To: user <[user.utcfs@gmail.com](mailto:user.utcfs@gmail.com)>

This is an automatically generated e-mail from your TVN 20.

EVENT TYPE: Motion Detected  
EVENT TIME: 2011-03-22,18:16:24  
TVN 20 NAME: TVN 20  
TVN 20 S/N: 1620110120BBRR000522806WCVU  
CAMERA NAME(NUM): IPCamera 05(D5)

# Exception Parameters – System Health Monitoring

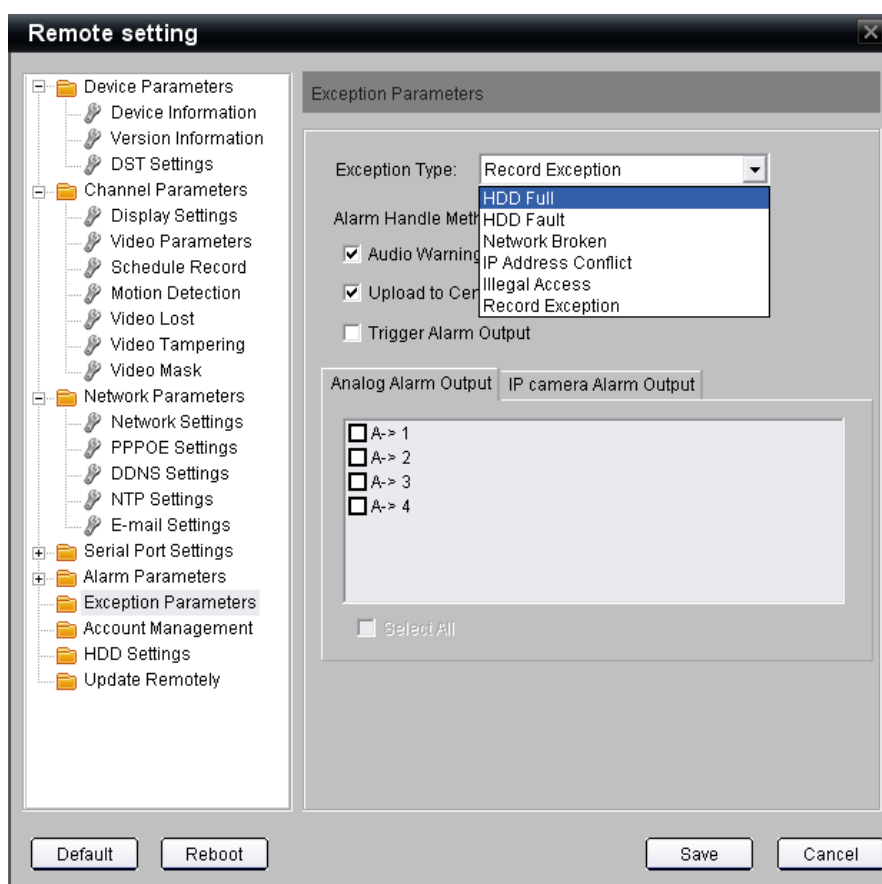
System capabilities include the detection and notification of various system health elements designed to protect the proper operation of the unit. These events can trigger local audible on the TVN 20 unit; they can trigger the local alarm outputs on the unit and can be sent to video management software such as Interlogix's TruVision Navigator software.

The type of events includes:

Health Status Item	Description
HDD Full	Reports HDD Full if OVERWRITE is NOT selected for recording. In this case the drives are set to fill up and stop recording when full.
HDD Fault	Reports if there is a health issue with a specific HDD including S.M.A.R.T HDD notifications this can include failure of the drive itself.
Network Broken	Connectivity to the network is disrupted.
IP Address Conflict	Reports an error if when adding this TVN 20 in the system if there is another device using the same IP Address. (Please note: This only identifies an IP address of the TVN 20 and not any conflicts with IP camera addresses)
Illegal Access	Under Account Management settings if a User provides the wrong login credentials or when IP Address Combine or MAC Address Combine login validation is violated, then this event will be triggered
Record Exception	Reports when a HDD that is expected to be available in the system is no longer available or the drive is no longer able to be written to. This could be a case where a drive has been removed or reinstalled but was not properly recognized by the system.

When these events are configured, the system responses include:

- **Audio Warning** to trigger a local unit audible on the TVN 20 upon an event (Unchecked by Default).
- **Upload to Center** should be checked for Interlogix TruVision Navigator notification (Checked by Default).
- **Trigger Alarm Output** to fire one or more of the on-the-box alarm outputs (Unchecked by Default).
- **Email Linkage** if you want the event to send off an email in response to an event.



To configure the system responses to these events:

1. Navigate to the **Exceptions Parameters** page from Main Browser Page:  
Click **Config** > under **Remote Config** area, select **Configuration parameters** and then select the **Exceptions Parameters** option in the Navigation window.
2. From the **Exception Type** drop-down list select the desired system event you wish to configure.
3. From the **Alarm Handling Method** area, please select the notification options desired (Audio Warning etc.)
4. If **Trigger Alarm Output** is selected, then from Analog Alarm Output tab, select one or more of the on-the-box outputs to trigger (A->1 thru A->4).
5. Repeat the steps 2-4 above for each additional **Exception Type** element you wish the system to respond to.

# Video Loss

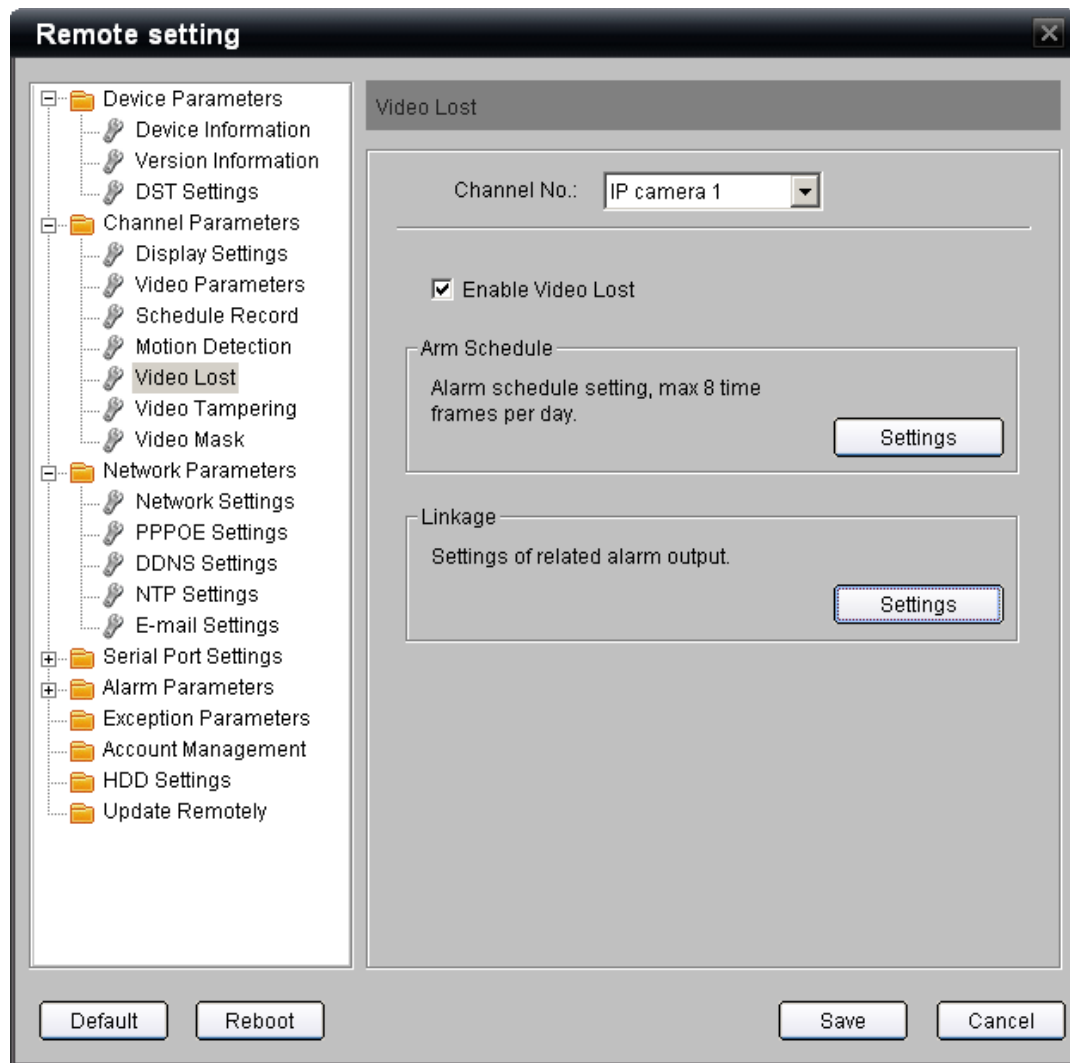
All connected IP cameras are by default set to monitor continuously for video loss. Video loss is the condition where the TVN 20 does not receive data updates from the IP camera. In addition, all video loss detection events by default are configured to notify to Interlogix's TruVision Navigator video software (**Report to Center** enabled).

Video Lost, like many other events in the TVN 20, can have a schedule for monitoring video loss and can have various notifications occur automatically in response to a video loss event. These notification events include:

- **Audio Warning** to trigger a local unit audible on the TVN 20 upon an event (Unchecked by Default).
- **Upload to Center** should be checked for Interlogix TruVision Navigator notification (Checked by Default).
- **Trigger Alarm Output** to fire one or more of the on-the-box alarm outputs (Unchecked by Default).
- **Email Linkage** if you want the event to send off an email in response to an event.
- **Trigger Alarm Output** to fire one or more of alarm outputs directly on specific models of supported IP Cameras.

To configure the system responses to these events, please follow the steps below to configure:

1. Navigate to the **Video Lost** page from Main Browser Page: Click **Config** > under **Remote Config** area, select **Configuration parameters** and then under **Channel Parameters** select the **Video Lost** option in the Navigation window.
2. Select the IP Camera channel to configure video loss settings.
3. To enable video loss detection, click on the **Enable Video Lost** check box (Checkbox is enabled by default for all added IP cameras)/



4. By default when Video Lost is enabled, this event is monitored 24 hours per day, 7 days per week. This is the recommended setting.
5. If you want to restrict notification to specific periods in the day, click on the **Settings** button in the **Arm Schedule** area. Up to eight on/off periods may be set in a day.

**Arm Schedule**

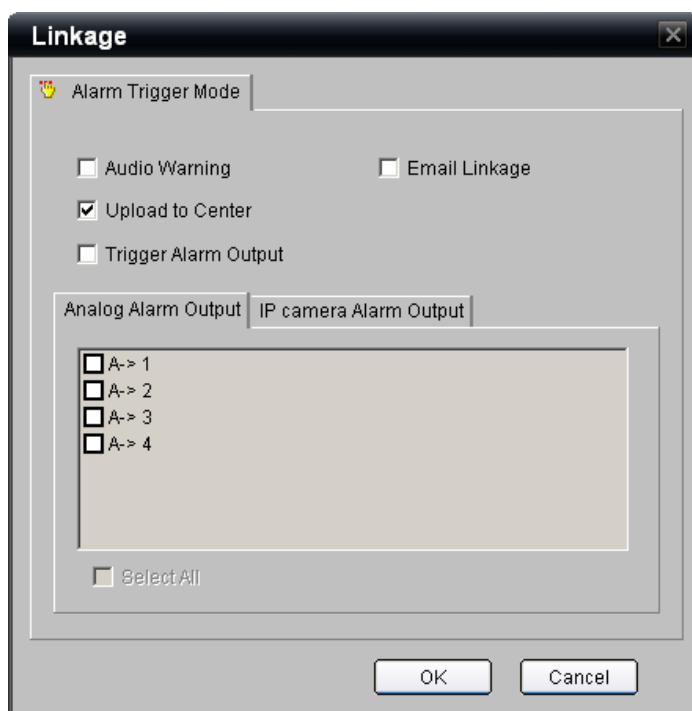
Weekday: **Monday**

<input checked="" type="checkbox"/>	Period1	00	:	00	---	24	:	00
<input type="checkbox"/>	Period2	00	:	00	---	00	:	00
<input type="checkbox"/>	Period3	00	:	00	---	00	:	00
<input type="checkbox"/>	Period4	00	:	00	---	00	:	00
<input type="checkbox"/>	Period5	00	:	00	---	00	:	00
<input type="checkbox"/>	Period6	00	:	00	---	00	:	00
<input type="checkbox"/>	Period7	00	:	00	---	00	:	00
<input type="checkbox"/>	Period8	00	:	00	---	00	:	00

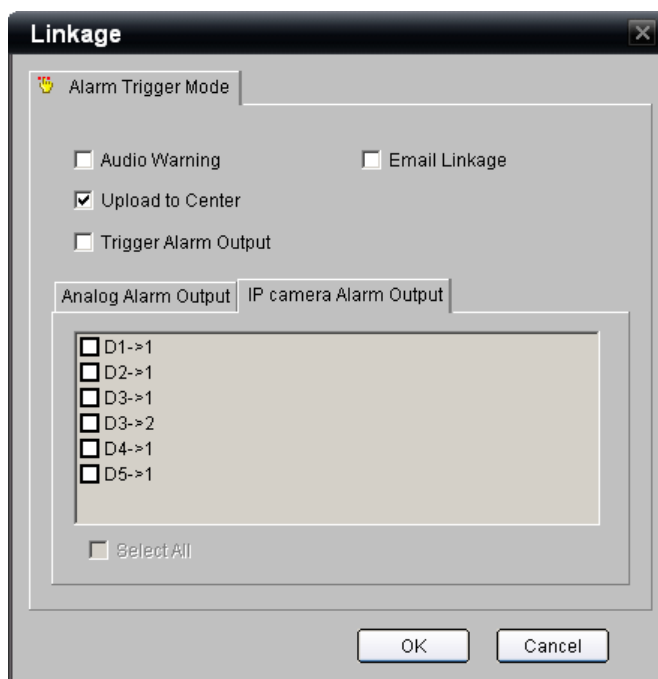
Copy to: **Whole Week** **Copy**

**OK** **Cancel**

6. Similar to setting recording schedules, the **Arm Schedule** page allows you to designate a specific schedule for one day and **Copy** it to a **Whole Week** or to other days of the week. The steps are:
  - a. Define one or more On/Off periods using the **Period** rows. Up to 8 On/Off periods can be defined for a single day.
  - b. Use the **Copy to** drop-down to select the Whole Week or another day of the week.
  - c. Pressing the **Copy** button completes the copy function for the On/Off periods defined above.
  - d. Repeat steps 6a-6c for each additional day to copy the schedule to unless **Whole Week** copy was used.
7. When you have the schedule complete select **Ok** to return to the main Video Lost page.
8. If you want the TVN 20 to take specific actions in response to a video lost event, select the **Settings** button in the **Linkage** area to customize the event notification.



9. Repeat steps 2-7 for each additional camera that needs a custom schedule.



## Remote Record & Video Download

Using the TVN 20 Browser, a properly permissioned User can perform the following functions:

- LIVE (PREVIEW)
  - Record the current live viewed camera(s) to the connected Browser computer.
  - Capture Snapshots of a currently viewed camera to the connected Browser computer
- PLAYBACK
  - Save the current playback camera clip to the connected Browser computer.
  - Capture Snapshots of a currently viewed camera to the connected Browser computer.
  - Download to the Browser computer a selected range of video.

## Local Config Page Settings

Before getting the results expected in using these features a number of settings need to be reviewed. Via the Browser go to the **Config** tab on the menu bar and select **Local Config**. The ability to access these features is controlled under the **Account Management** area of the TVN 20 Browser.



Figure 34: Config Tab

The following fields determine where manually saved live/recorded video and snapshots are stored on the Browser computer that is currently connected to the TVN 20. If multiple computers connect via the browser, each PC will have stored on it whatever the video is the User (that Browser Computer) requested from the TVN 20. The default settings place these different files on the Browser are listed directly below (these locations can be changed by the User). The TVN 20's default setting creates the following paths under Program Data folder on the "C" drive:

Saved File Type	Default File Location
<b>Path for saving files recorded from Live/Preview or TVN 20 recorded video files during playback that are saved to the Browser computer</b>	C:\Program Data\Web\RecordingFiles
<b>Path for saving preview captured images (Snapshots from Live)</b>	C:\Program Data\Web\BMPCaptureFiles
<b>Path for saving playback captured images (Snapshots from Live)</b>	C:\Program Data\Web\PlaybackPicFiles
<b>Path for saving downloaded files (Download from Playback)</b>	C:\Program Data\Web\DownloadFiles

The recommendation is to keep the default settings for these remaining elements. These settings control how the Browser (PC) connects to and

interacts via the network with the TVN 20. Listed below are these settings, the available options and the recommended defaults:

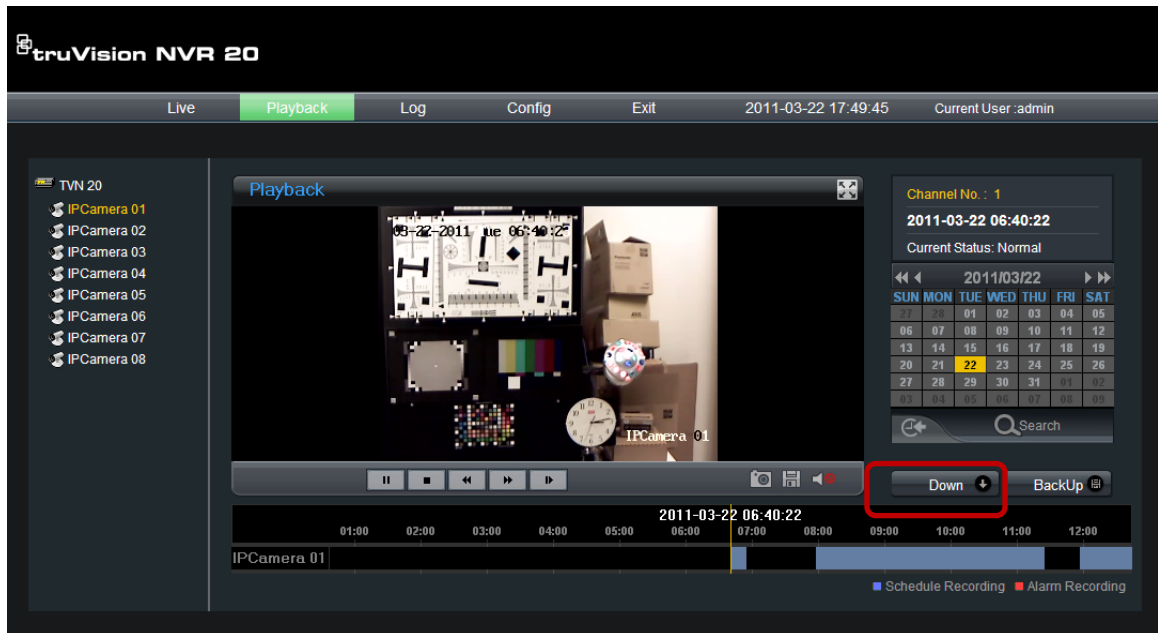
Field Name	Default Setting	Available Selections	Explanation
Protocol Type	TCP	- TCP  - UDP	Controls how Live/Preview streaming is managed to the Browser computer. The recommended setting is TCP.
The Transfer File Size for Live/Preview Cameras to the Browser Computer	256M	- 128M  - 256M  - 512M	Defines the file size for any Live/Preview video that is manually recorded to the Browser computer. The recommended setting is 256M.
Stream Type	Main stream	- Main stream  - Sub stream	Only applies to Live/Preview viewing on the Browsing computer when the IP camera supports both a Main stream and a Sub stream. If the Sub stream is used, this can render a lower quality image that uses less network bandwidth. If a Sub stream is not supported for the camera, then the Main stream is automatically used. The recommended setting is Main stream.
Network Transmission Feature	Best Fluency	- Shortest Delay Mode  - Less Delay, Good Fluency  - Less Delay, Good Fluency  - Best Fluency	This defines the quality optimization for the Live/Preview stream to the TVN 20. The values go from fastest update to the smoothest display quality. The recommended setting is Best Fluency.
Display Mode	Full	- Full  - 4:3  - 16:9  - Adjustable to resolution	Controls the rendering of video on the Browsing computer based upon the display connected to the remote computer. The recommended setting is Full.

If you make changes to the default settings, press **Save** to retain the new settings. If you want to restore the factory default settings for the Browser computer settings, press the **Reset** button.

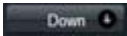
## Download Button – Playback Page

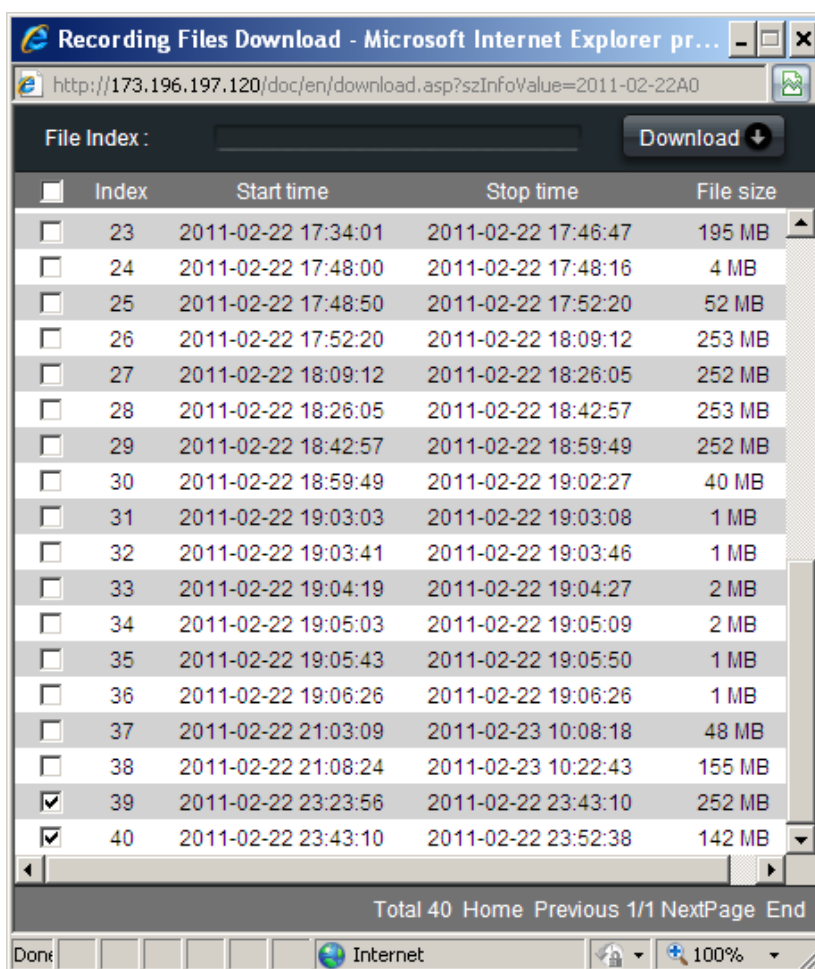
The User, with authorized permissions, can remotely backup selected video clips to a USB device directly connected to the TVN 20 unit. Please see the Appendix titled TVN 20 USB Options for instructions on how to use this feature.

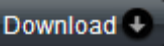
Figure 35: Download button location

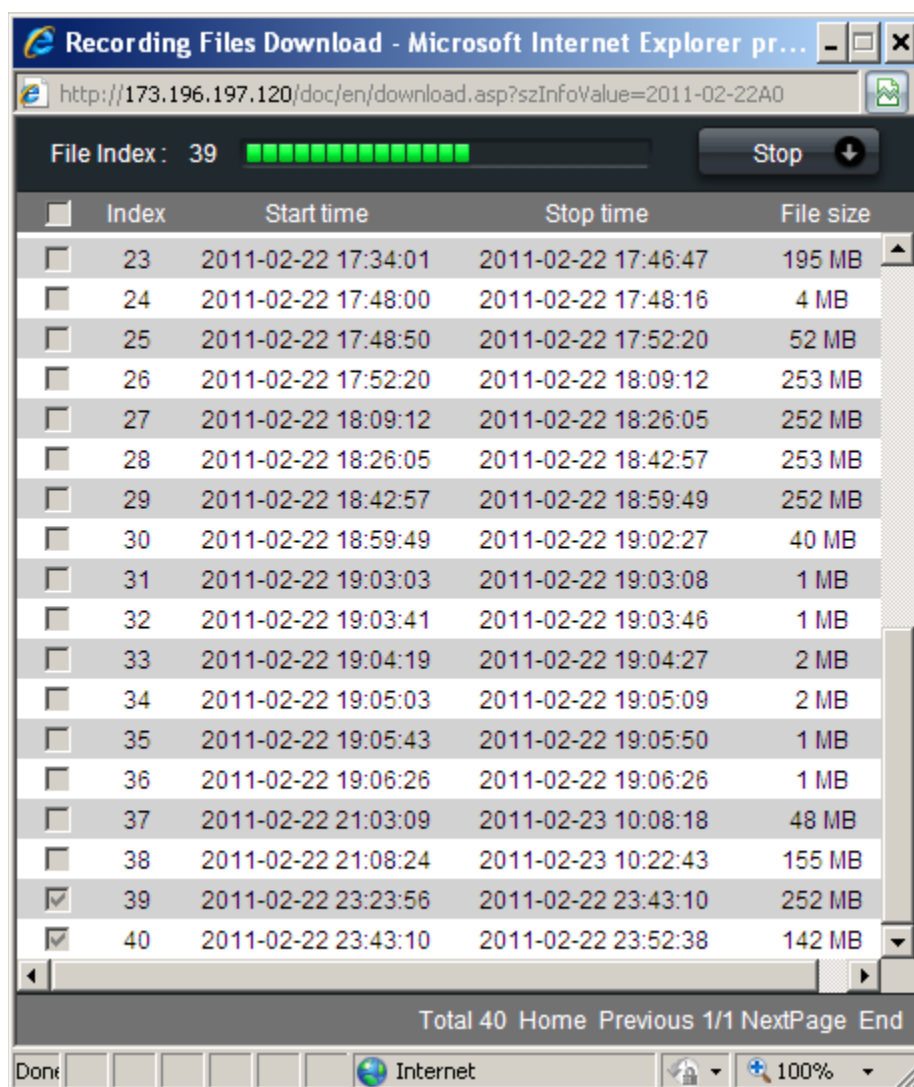


The process is as follows:

1. Select from the Main Browser page **Playback** tab.
2. Select the **Date** from the calendar.
3. Press the **Search** button to define a specific date to narrow the video search for the download.
4. Pause or Stop the Playback
5. Select the **Down** (download) button .
6. A separate window will open that displays the time clips organized by date and time.



7. Select the check boxes corresponding to the dates and times for the video you wish to download. If the video you are seeking is not displayed press the **Previous** / **Next** page indicators at the bottom of the page to locate the page with the desired video.
8. Press the **Download** button  at the top of the window to begin the download. The window will display an active status bar at the top showing the progress of the download.



9. At any time the download can be stopped by pressing the Stop button.
10. When the download is finished a **Download is complete** dialog box will be presented, click **Ok** to close.



11. Video can be played on the Browser PC by using the Archive Player provided on the TVN 20 Product Documentation CD.

### **BackUp Button – Playback Page**

The User, with authorized permissions, can download selected video clips to the connected Browser computer for saving permanently or to retain events that would otherwise be recorded over.

# Additional Network Settings

This section describes the additional network features supported by the TVN 20. It is not intended to replace the requirements of your IT Network Manager. Please consult with your IT Manager regarding implementation of these settings.

The commonly used settings have been presented in the early pages of this manual (IP Address, Time-Synchronization, NTP Server, Alarm Host Settings (TruVision Navigator Software reporting) Daylight Savings Time).

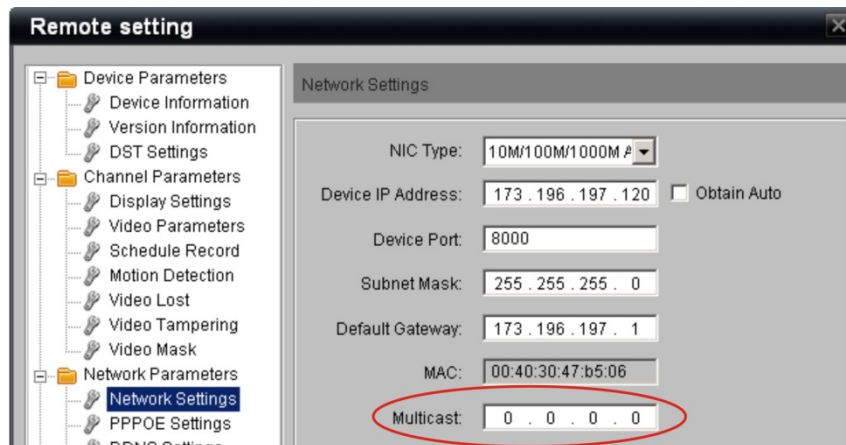
The network topics and settings presented represent more unique application elements supported by the system. The settings reviewed in this section are:

- Multicast
- HTTP Port
- DDNS
- PPPoE

## Multicast

Setting up multicasting resolves limitation issues when streaming videos through a network access device. A multicast address spans the Class-D IP range of 224.0.0.0 to 239.255.255.255. We recommend that the IP address range of 239.252.0.0 to 239.255.255.255 be used.

1. Navigate to the **Network Settings** page from Main Browser Page: Click **Config** > under **Remote Config** area, select **Configuration parameters** and then under **Network Parameters** select the **Network Settings** option in the Navigation window.



2. Enter the IP Address of the Multicast Server
3. Click **Save** to retain these settings.

**Note:** When adding a device to the Network Video Surveillance software, the multicast address must be the same as the DVR's multicast IP.

## Device Port & HTTP Settings

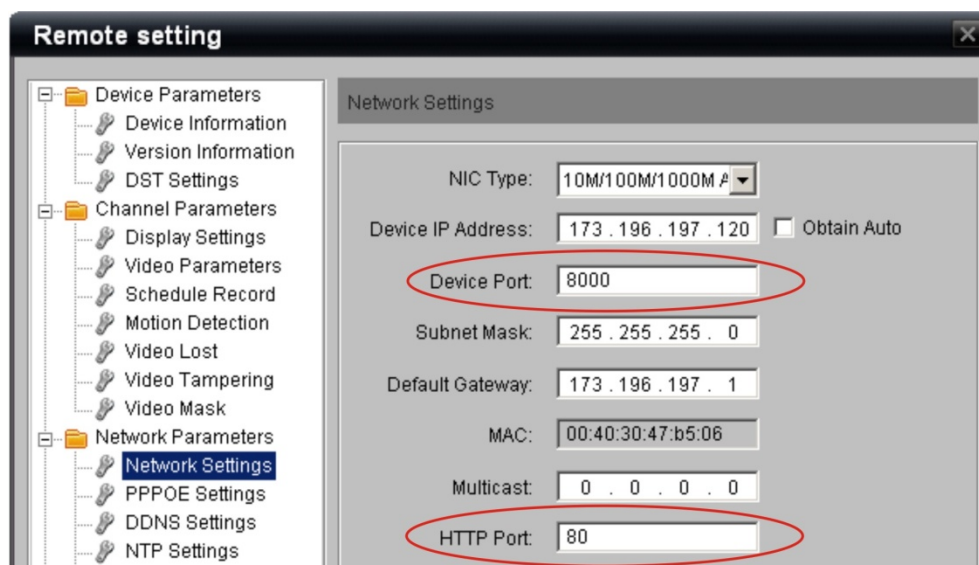
Unless your IT Manager has a specific requirement to use specific ports across the network, the recommendation is to keep the default settings. Both settings are on the same page.

If you are using video software (Interlogix's TruVision Navigator), if you change either of these two settings, TruVision Navigator software needs to have these changes reflected in the device setup within TruVision Navigator.

Device Port	Used by Interlogix's TruVision Navigator Software and Remote Client Software and has a available address range from 2000-65535. Default Setting is 8000.
HTTP Port	Used by Remote Client Browser to access the TVN 20 Browser across the network. Default Setting is 80.

To view or change these settings:

1. Navigate to the **Network Settings** page from Main Browser Page: Click **Config** > under **Remote Config** area, select **Configuration parameters** and then under **Network Parameters** select the **Network Settings** option in the Navigation window.



2. Enter the desired values for these two settings
3. Click **Save** to retain these settings



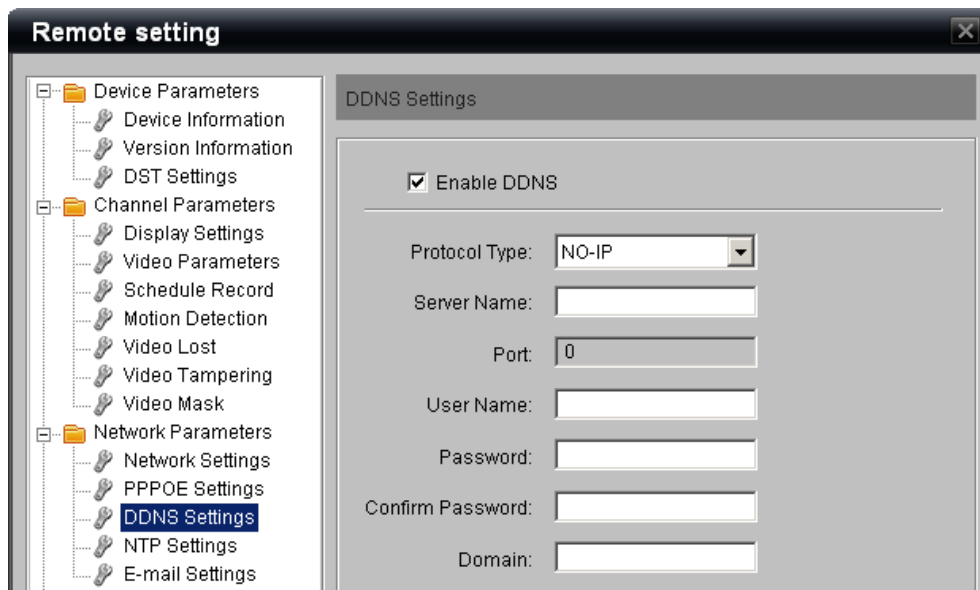
## PPPoE & DDNS Settings

These two settings are frequently used together whenever a User is attempting to view the device via a broadband internet connection.

- DDNS define an internet service group that provides User with fixed network addresses so a connection to the device across the internet can be reliably achieved.
- PPPoE settings are used to access an internet service provider from things such as an ADSL modem.

To view or change the DDNS settings:

1. Navigate to the **DDNS Settings** page from Main Browser Page: Click **Config** > under **Remote Config** area, select **Configuration parameters** and then under **Network Parameters** select the **DDNS Settings** option in the Navigation window.



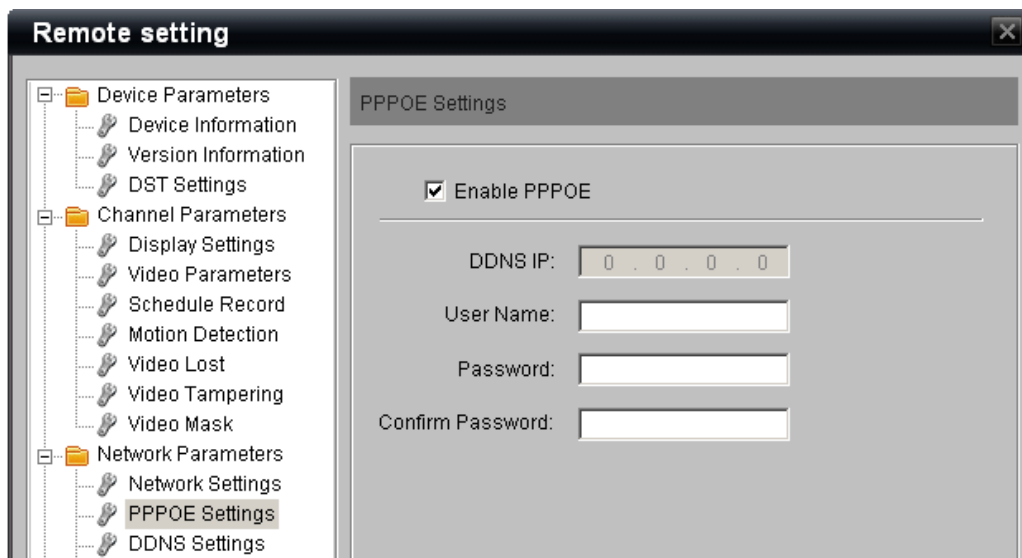
The screenshot shows a web browser window titled "Remote setting". On the left is a navigation tree with categories: Device Parameters (Device Information, Version Information, DST Settings), Channel Parameters (Display Settings, Video Parameters, Schedule Record, Motion Detection, Video Lost, Video Tampering, Video Mask), and Network Parameters (Network Settings, PPPoE Settings, **DDNS Settings**, NTP Settings, E-mail Settings). The "DDNS Settings" page is active, showing a checkbox "Enable DDNS" which is checked. Below this are fields for "Protocol Type" (a dropdown menu currently showing "NO-IP"), "Server Name", "Port" (with a value of "0"), "User Name", "Password", "Confirm Password", and "Domain".

2. To enable DDNS services, click the checkbox **Enable DDNS**.
3. Under **Protocol Type**, select from the drop-down list the protocol for the service agency you set your account up with the listed sites are:
  - NO-IP
  - DynDNS
  - PeanutHull
4. Enter the name of the service agencies server in the **Server Name** field.
5. In some cases the server will use a specific port assignment, please enter this as required under **Port**:

6. Enter the **User Name** and **Password** associated with the service agency you set up with
7. Reconfirm the password under the **Confirm Password** field
8. Enter the **Domain** name assigned to you by the service agency for your domain access for the TVN 20 across the Internet.
9. Click **Save** to retain your settings.

## To view or change the PPPoE settings:

1. Navigate to the **PPPoE Settings** page from Main Browser Page: Click **Config** > under **Remote Config** area, select **Configuration parameters** and then under **Network Parameters** select the **PPPoE Settings** option in the Navigation window.



The screenshot shows a web browser window titled "Remote setting". On the left is a navigation tree with categories: Device Parameters (Device Information, Version Information, DST Settings), Channel Parameters (Display Settings, Video Parameters, Schedule Record, Motion Detection, Video Lost, Video Tampering, Video Mask), and Network Parameters (Network Settings, **PPPoE Settings**, DDNS Settings). The "PPPoE Settings" option is highlighted. The main content area is titled "PPPoE Settings" and contains a checkbox labeled "Enable PPPOE" which is checked. Below this are four input fields: "DDNS IP:" with a numeric keypad showing "0.0.0.0", "User Name:", "Password:", and "Confirm Password:".

2. To enable PPPoE, click the **Enable PPPOE** checkbox.
3. Enter the **User Name** and **Password** associated with your device on the Domain identified under the DDNS settings..
4. Confirm your password in the **Confirm Password** field.
5. Click **Save** to retain your settings.

# Remote Update

TVN 20 capabilities will improve over time as new capabilities are introduced into the firmware, especially in the case of new models of IP cameras.

The TVN 20 can be remotely upgraded to newer firmware. The process requires:

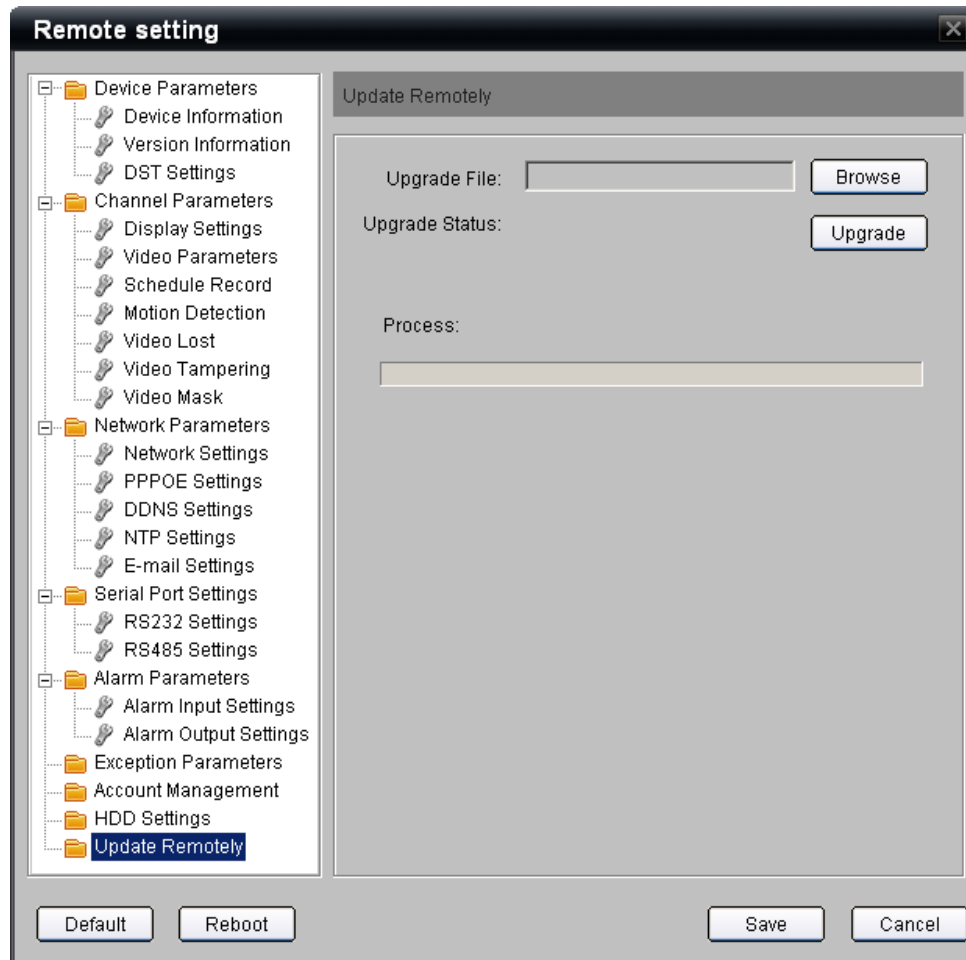
1. Downloading the latest version of firmware The TVN 20 from the firmware download site to your PC that connects to the TVN 20. The current website for downloading firmware updates is:

[www.utcssecurityproducts.com/CustomerSupport/Pages/VideoSurveillance.aspx](http://www.utcssecurityproducts.com/CustomerSupport/Pages/VideoSurveillance.aspx)

or

<http://www.utcssecurityproductspages.eu/videoupgrades/>

2. From the left navigation area of the TVN 20, select **Update Remotely**.



3. Click the **Browse** button to navigate to the file location on the computer you downloaded the update from and selecting the update file.

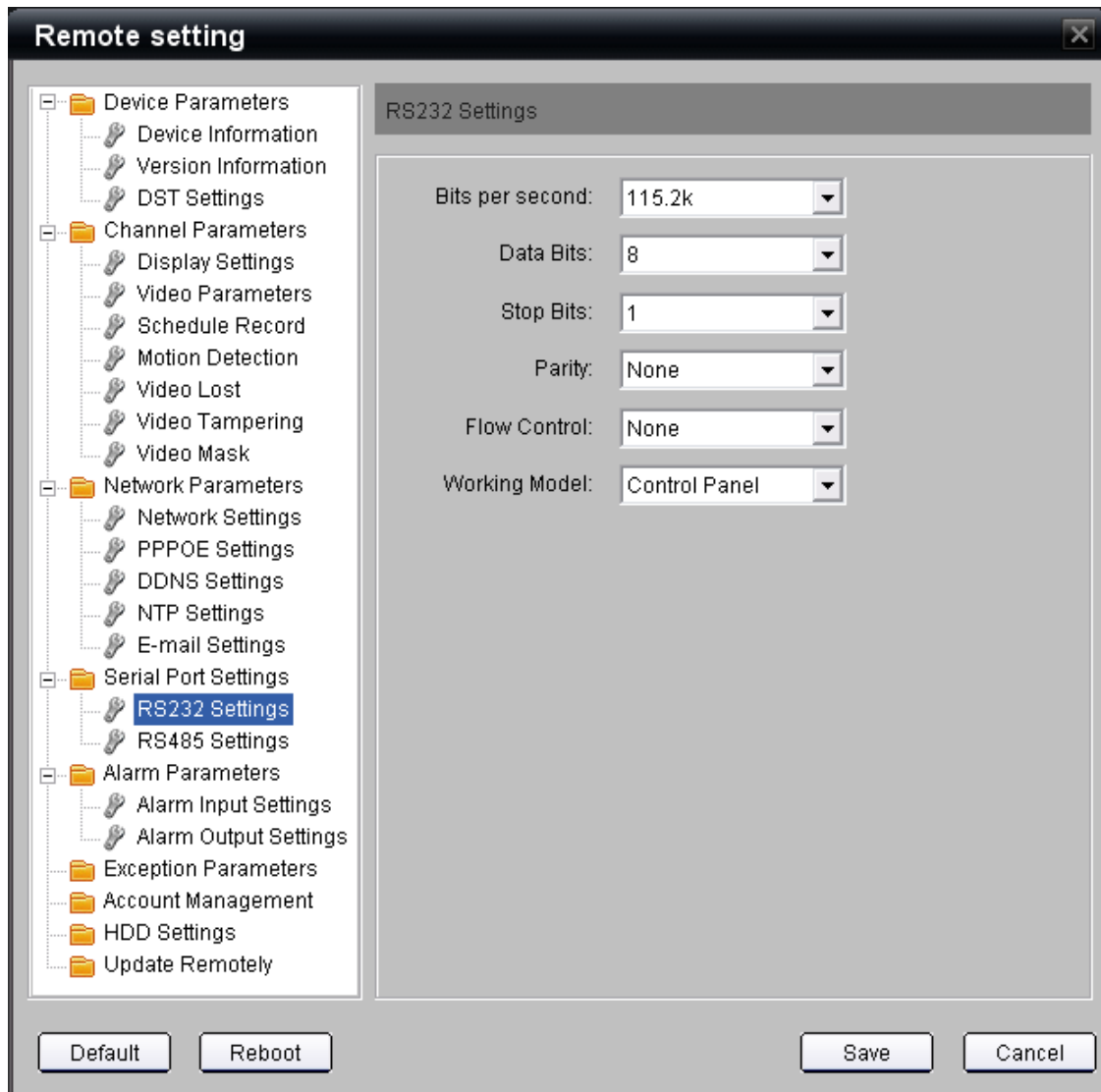
4. Once you have selected the desired file, press the **Upgrade** button to commence the remote upgrade of the unit.
5. The Process bar will show you the progress of the update.
6. Upon completion of the update, the system will notify you of completion to reboot. Simply follow the on-screen instructions.

(Please Note: The Save button on this screen is not used)

# Serial Port Settings – RS-232 & RS-485

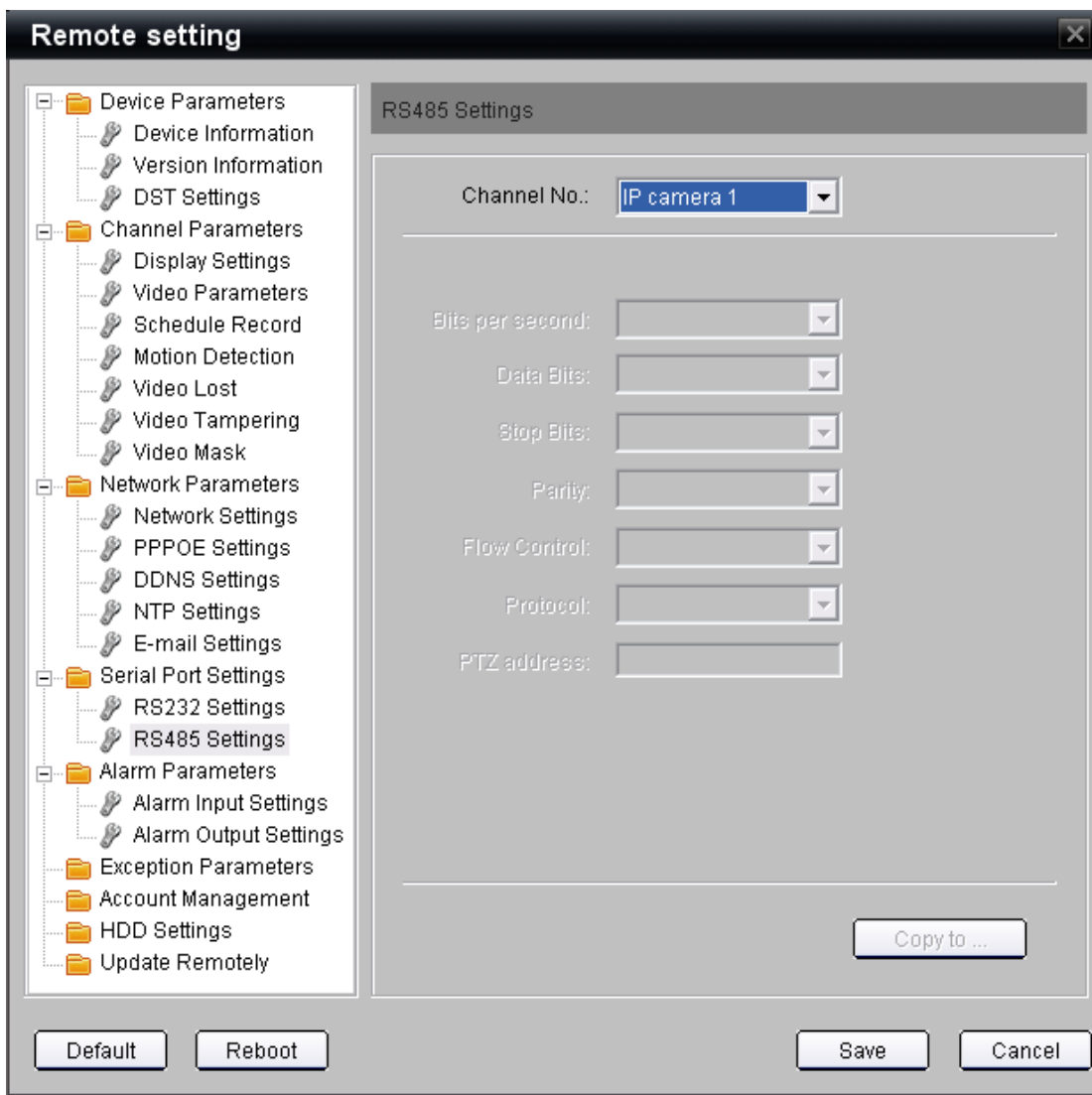
## RS-232 Port

Presently the RS-232 port on the TVN 20 is only for Interlogix technical support use only.



## RS-485 Ports

The RS-485 port on the rear of the TVN 20 and RS-485 from IP cameras that support an RS-485 connection are not used at this time and are reserved for future use.



# Log Files

The TVN 20 has extensive logging built-in. Logs are only accessible by User with appropriate rights defined under the Account Management area. The type of logged events includes:

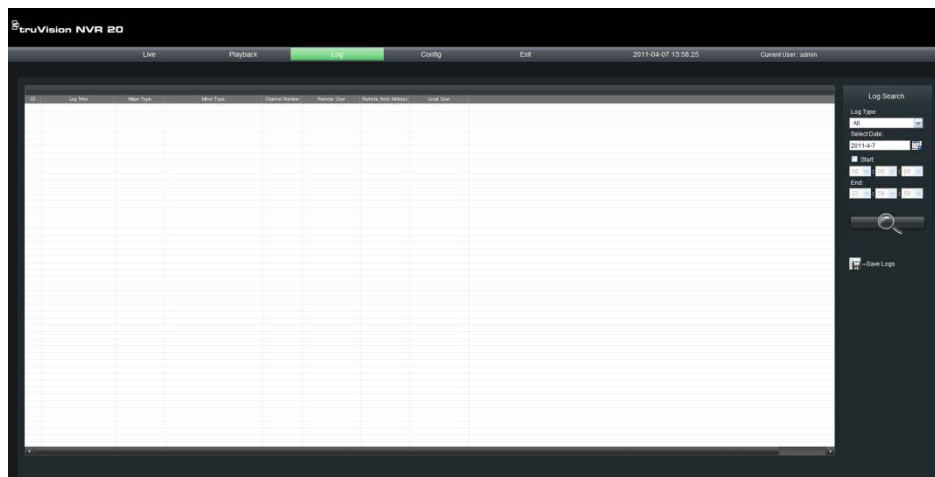
Log Types	
All	All log message types below are included
Alarm	All events associated with alarm inputs, motion detection activation, and alarm output activation
Exception	All events associated with Exception Parameters (HDD Full, HDD Fault, Network Broken, IP Address Conflict, Illegal Access, Record Exception, video lost, camera disconnect etc.)
Operation	Actions initiated by Users (Administrator, Operator & Guest)
Information	System events such as stop and starting of recording by channel number

The log will display appropriate detail based upon the type of event:

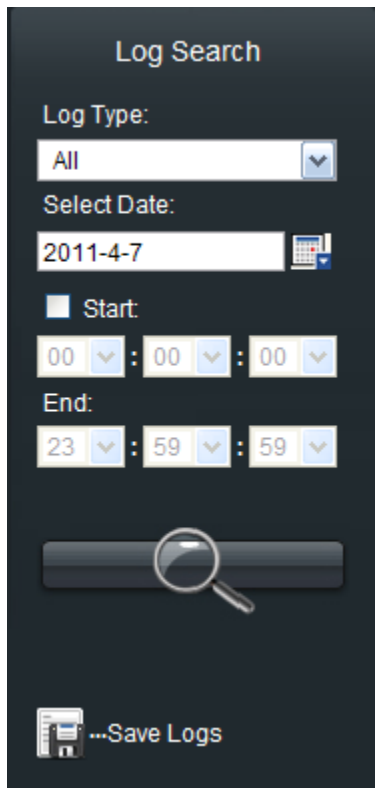
- Event ID #
- Event Time
- Major Type (Alarm, Exception, Operation, Information)
- Minor Type (Specific and detailed description)
- Channel Number (if the activity is associated with a IP video channel)
- Remote User (if the activity is associated directly with a User: admin, operator, guest)
- Remote Host Address (the IP address of the remote user)

To view and apply searches on log files, the steps are as follows:

1. From the **Remote Config** Browser page select **Log** from the top menu bar.



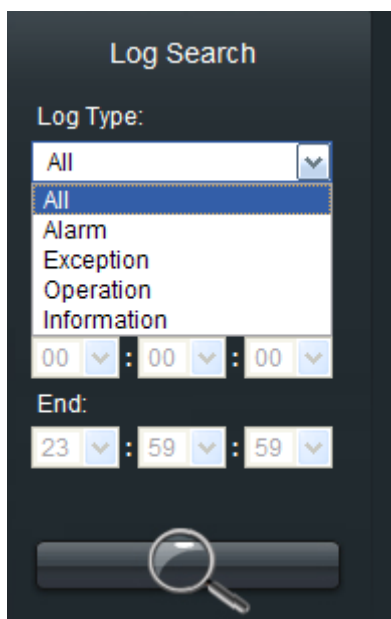
2. From the Log Search area on the right selection area.



The screenshot shows a 'Log Search' panel with the following elements:

- Log Type:** A drop-down menu with 'All' selected.
- Select Date:** A date input field showing '2011-4-7' with a calendar icon to its right.
- Start:** A time selection area with a checkbox labeled 'Start' and three time pickers set to '00 : 00 : 00'.
- End:** A time selection area with three time pickers set to '23 : 59 : 59'.
- A large magnifying glass icon in the center.
- A button at the bottom left with a floppy disk icon and the text '...Save Logs'.


3. Select the **Log Type** from the drop-down (All, Alarm, Exception, Operation, and Information).



This screenshot shows the 'Log Search' panel with the 'Log Type' drop-down menu open. The menu lists the following options: 'All' (highlighted), 'Alarm', 'Exception', 'Operation', and 'Information'. The other fields (date, start/end times, magnifying glass, and save button) remain in the same state as the previous screenshot.

4. Select the day you want to view logs for from the **Date** selector.
5. To reduce the amount of log entries to view, it is recommended that you further refine your search by entering a time range.



- a. Select the **Start** checkbox.
  - b. Enter a **Start** time and an **End** time.
6. Press the search icon  to initiate the log search based upon the criteria defined above.
  7. The system will return a populated list.



#	Log Time	Alarm Type	Alarm Type	Channel Number	Remote User	Remote Host Address	Local User
1	2011-04-07 12:10:05	Exception	Recording Full	01		0.0.0.0	
2	2011-04-07 12:10:05	Information	Stop Recording	01		0.0.0.0	
3	2011-04-07 12:10:05	Information	Start Recording	01		0.0.0.0	
4	2011-04-07 12:10:19	Operation	Remote Format HDD		operator	172.16.137.195	
5	2011-04-07 12:25:13	Operation	Remote Log Off		operator	172.16.137.195	
6	2011-04-07 12:40:12	Operation	Remote Log On		admin	172.16.137.194	
7	2011-04-07 12:40:12	Operation	Remote Get Parameters		admin	172.16.137.194	
8	2011-04-07 12:40:12	Operation	Remote Get Parameters		admin	172.16.137.194	
9	2011-04-07 12:40:12	Operation	Remote Get Parameters		admin	172.16.137.194	
10	2011-04-07 12:40:12	Operation	Remote Get Parameters		admin	172.16.137.194	
11	2011-04-07 12:40:12	Operation	Remote Log On		admin	172.16.137.194	
12	2011-04-07 12:40:13	Operation	Remote Log On		admin	172.16.137.194	
13	2011-04-07 12:40:13	Operation	Remote Get Parameters		admin	172.16.137.194	
14	2011-04-07 12:40:13	Operation	Remote Get Parameters		admin	172.16.137.194	
15	2011-04-07 12:40:13	Operation	Remote Get Parameters		admin	172.16.137.194	
16	2011-04-07 12:40:13	Operation	Remote Get Parameters		admin	172.16.137.194	
17	2011-04-07 12:40:13	Operation	Remote Get Parameters		admin	172.16.137.194	
18	2011-04-07 12:40:19	Operation	Remote Get Parameters		admin	172.16.137.194	
19	2011-04-07 12:40:44	Operation	Remote Log On		admin	172.16.137.194	
20	2011-04-07 12:40:44	Operation	Remote Log On		admin	172.16.137.194	
21	2011-04-07 12:40:44	Operation	Remote Get Parameters		admin	172.16.137.194	
22	2011-04-07 12:40:44	Operation	Remote Get Parameters		admin	172.16.137.194	
23	2011-04-07 12:40:44	Operation	Remote Get Parameters		admin	172.16.137.194	
24	2011-04-07 12:40:44	Operation	Remote Get Parameters		admin	172.16.137.194	
25	2011-04-07 12:40:44	Operation	Remote Get Parameters		admin	172.16.137.194	
26	2011-04-07 12:40:44	Operation	Remote Get Parameters		admin	172.16.137.194	
27	2011-04-07 12:40:45	Operation	Remote Get Parameters		admin	172.16.137.194	
28	2011-04-07 12:40:50	Operation	Remote Log On		admin	172.16.137.194	
29	2011-04-07 12:40:50	Operation	Remote Log On		admin	172.16.137.194	
30	2011-04-07 12:40:50	Operation	Remote Get Parameters		admin	172.16.137.194	

8. The result log files may be exported on the Browser computer by pressing the Save Logs icon.
  - a. Logs may be save to an Windows Excel (.xls) or a Windows Text File format (.txt).

The maximum number of log files that can be listed in the display is 2,000 records. This is just the number that can be returned in a query. The actual amount is limited to 64MB per hard drive in the system.

# Appendix A

## Troubleshooting

Place the TVN 20 in a well-ventilated space so that it operates within the allowed range of temperatures and humidity as in the specification.

Failure	Possible reason and actions to take
<b>Why does my TVN make a beeping sound after booting up?</b>	<p>There are a few reasons for the warning beeper to activate on your TVN during boot-up:</p> <ol style="list-style-type: none"><li>1. There is no HDD present in the TVN</li><li>2. The HDD has not been initialized</li><li>3. The HDD is defective</li></ol> <p>Please refer to the Exception Parameters section of this manual for additional information. Check the system logs for any recent entries.</p>
<b>The TruVision Device Finder cannot find my TVN 20</b>	<p>The TruVision Device Finder will only discover devices that are on the same LAN. It is not able to discover devices across a VLAN.</p>
<b>I am not able to Auto Discovery my IP Cameras</b>	<p>There are several reasons why an IP camera may not be auto-discovered:</p> <ol style="list-style-type: none"><li>1. Verify that the expected IP camera is auto-discoverable by the TVN 20 by checking the TVN 20 IP Camera Compatibility Chart</li><li>2. Check that the IP camera is on the same network environment as the TVN 20 and your PC</li><li>3. Verify, if using a POE switch to power the camera, that the connected port on the POE does indeed support power-over-ethernet.</li></ol>
<b>Why am I not getting video in Live view from the TVN 20 Browser</b>	<p>For the IP camera you are trying to view, please check:</p> <ol style="list-style-type: none"><li>1. IP Address of the IP camera is correctly listed in the TVN 20</li><li>2. The IP camera port number is correctly listed in the TVN 20</li><li>3. Verify that the correct User Name and Password is entered for the IP camera</li><li>4. Verify that the IP camera firmware version is supported by the TVN 20 by checking the TVN 20 IP Camera Compatibility Chart</li></ol>

Failure	Possible reason and actions to take
<b>I am not able to login, or I receive an error when logging in?</b>	<p>There are several reasons this might be happening, please check:</p> <ol style="list-style-type: none"> <li>1. That the User Name and Password is correct</li> <li>2. If you receive a message that indicates that an Active X Control has not be registered , please check that the following Active X controls reside on your TVN 20 Browser PC. From Internet Explorer check under Tools &gt; Manage Add-ons: <ol style="list-style-type: none"> <li>a. TVN20NetVideoActiveX_V23.cab</li> <li>b. TVN20RealPlayActiveX23 ActiveX Control Module</li> </ol> </li> </ol>
<b>Why am I not getting playback video from the TVN 20 Browser?</b>	<p>For the IP camera you are trying to view, please check:</p> <ol style="list-style-type: none"> <li>1. The schedule recording period for the camera is active for the time you are requesting to view</li> <li>2. That the HTTP connection port for the TVN 20 Browser on your PC is set for port 80 (found under the Configuration Parameters &gt; Network Settings)</li> <li>3. If you are on a low-bandwidth network, make sure that the Protocol Type for the TVN 20 Browser is set to TCP (found under CONFIG&gt;Local Config).</li> <li>4. Verify that the required ActiveX controls are installed on your Client PC. From Internet Explorer check under Tools&gt;Manage Add-ons. I The following elements may be involved: <ol style="list-style-type: none"> <li>a. TVN20RealPlayActiveX23 ActiveX Control Module</li> <li>b. TVN20Calendar ActiveX Control Modulec.</li> <li>c. TVN20PlaybackBarActiveX ActiveX Control Module</li> </ol> </li> </ol> <p>If these controls are not loaded they may be blocked by your IT department from being loaded.</p>
<b>My Video display/playback is not smooth?</b>	<p>There are several possible reasons for video display/playback to not be smooth. In many cases the reason is with the TVN 20 Browser PC or that the TVN 20 is being asked to push too much data:</p> <ol style="list-style-type: none"> <li>1. Verify that the PC specifications for your TVN 20 Browser are sufficient for the number of cameras you are trying to display.</li> <li>2. If you are doing multi-image live display, try reducing the number of simultaneously viewed cameras to 4-up or 1-up.</li> <li>3. If you are on a low-bandwidth network, make sure that the Protocol Type for the TVN 20 Browser is set to TCP (found under CONFIG&gt;Local Config).</li> <li>4. Lower the bit rate of your IP camera to see if that improves performance</li> </ol>

<b>Failure</b>	<b>Possible reason and actions to take</b>
<b>Why am I not getting motion event recording?</b>	<p>The possible causes for this may be:</p> <ol style="list-style-type: none"> <li>1. Verify that the desired IP camera supports motion event recording. Check the TVN20 IP Camera Compatibility Chart.</li> <li>2. If 3rd Party IP camera, verify that motion detection areas are set up on the camera AND that the motion event trigger is enabled at the camera</li> <li>3. At the IP camera verify that SNMP Port on the IP Camera is set to port 30960 (this is the port the TVN 20 "listens" to for camera event notifications)</li> </ol>
<b>Why doesn't my USB device not successfully accept COPY</b>	<p>If the TVN 20 unit alarm beeps after pressing the COPY button, which indicates that connect USB device is either not compatible or not formatted for use with the TVN 20.</p> <p>You can verify formatting by first placing the USB stick in your PC (which should auto-format) the device. Afterwards, try reinserting the device in the USB port of the TVN 20 and pressing COPY.</p>
<b>I am unable to search the system logs?</b>	<p>If you receive a message that indicates that an Active X Control has not be registered , please check that the following Active X controls reside on your TVN 20 Browser PC. From Internet Explorer check under Tools &gt; Manage Add-ons:</p> <p>a. TVN20SearchLogActiveX_23 ActiveX Control Module</p>
<b>I am using TruVision Navigator 4.x and I am not able to display live or playback video in Navigator, what is wrong?</b>	<p>Please verify:</p> <ol style="list-style-type: none"> <li>1. That the User Name and Password TruVision Navigator is using to connect to the TVN 20 is correct</li> <li>2. Verify that the IP address and port number used by the TVN 20 is correctly setup in TruVision Navigator. Please refer to the TruVision Navigator User Manual.</li> </ol>
<b>I am using TruVision Navigator 4.x and I am not able to receive alarm event notifications, what is wrong?</b>	<p>There are only a few reasons this might occur. Please verify:</p> <ol style="list-style-type: none"> <li>1. That the Alarm Host IP address entered in the TVN 20 is correct for TruVision Navigator. The Alarm Host IP address is input on the TVN 20 under Configuration parameters &gt; Network Settings &gt; Advanced button. In TruVision Navigator it is listed under the Device Notifications tab under Notify IP</li> <li>2. That the Alarm host port used by TruVision Navigator (Notify Port) is set to 5001.</li> </ol>

Failure	Possible reason and actions to take
I am not getting motion event triggers from my Axis IP cameras running firmware before 5.40.9.2?	<p>There are several required setup elements that must be configured IN the AXIS IP Camera Browser if the TVN 20 is going to be able to record on motion:</p> <ol style="list-style-type: none"> <li>1. Make sure Motion Detection Zones are setup in the AXIS IP Camera</li> <li>2. Under <b>EVENT SERVERS</b>, make sure the IP Address is set to the IP Address of the TVN 20 hosting the Axis IP Camera.</li> <li>3. Under <b>EVENT SERVERS</b>, make sure that <b>Port</b> address is set to <b>30960</b>.</li> <li>4. Additionally, in the AXIS IP Camera browser under <b>Event Config &gt; Event Types</b> that the following settings are configured: <ol style="list-style-type: none"> <li>a. The checkbox associated with <b>send TCP notification</b> is CHECKED</li> <li>b. Additionally on the same page that in the field <b>Message</b> that <b>#t</b> is entered.</li> </ol> </li> </ol>
I am not getting motion event triggers from my Axis IP cameras with firmware 5.40.9.2?	<p>There are several required setup elements that must be configured IN the AXIS IP Camera Browser if the TVN 20 is going to be able to record on motion:</p> <ol style="list-style-type: none"> <li>1. Make sure Motion Detection Zones are setup in the AXIS IP Camera</li> <li>2. Under <b>EVENT – RECIPIENT SETUP</b>, make sure: the IP Address is set to the IP Address of the TVN 20 hosting the Axis IP Camera, the <b>TYPE</b> is set to TCP and the <b>PORT</b> is set to 30960.</li> <li>3. Additionally, in the AXIS IP Camera browser under <b>EVENT – ACTION RULES SETUP</b> the following settings are configured: <ol style="list-style-type: none"> <li>a. The <b>Name</b> is setup as 'M1'. Additional Names should be sequential, 'M2', 'M3' and so on.</li> <li>b. Additionally on the same page that in the field <b>Message</b> that <b>#t</b> is entered.</li> </ol> </li> </ol>

# Appendix B

## TVN 20 Specifications

<b>Video</b>	
Video format	IP Digital Video
Resolution (H x V)	<p>Varies based upon supported IP Cameras from different Manufacturers. Supported resolutions include (not all are available on every IP camera):</p> <ul style="list-style-type: none"> <li>• 4CIF (704x576)</li> <li>• VGA (640x480)</li> <li>• SVGA (800x600)</li> <li>• XGA (1024x768)</li> <li>• SXGA (1280x1024)</li> <li>• UXGA (1600x1200)</li> <li>• QXGA (2048x1536)</li> </ul>
Video compression	H.264, MPEG4 (based upon supported features of individual IP cameras)
IP Video input	8 or 16 channels maximum capacity based upon TVN 20 model
<b>Recording</b>	
Hard drive	<p>8-Channel Unit: 1, 2, 4 HDD SATA supporting SMART @ 2TB per drive</p> <p>16-Channel Unit: 2, 4, 8 HDD SATA supporting SMART @ 2TB per drive</p>
Resolution	<p>Varies based upon supported IP Cameras from different Manufacturers. Supported resolutions include (not all are available on every IP camera):</p> <ul style="list-style-type: none"> <li>• 4CIF (704x576)</li> <li>• VGA (640x480)</li> <li>• SVGA (800x600)</li> <li>• XGA (1024x768)</li> <li>• SXGA (1280x1024)</li> <li>• UXGA (1600x1200)</li> <li>• QXGA (2048x1536)</li> </ul>

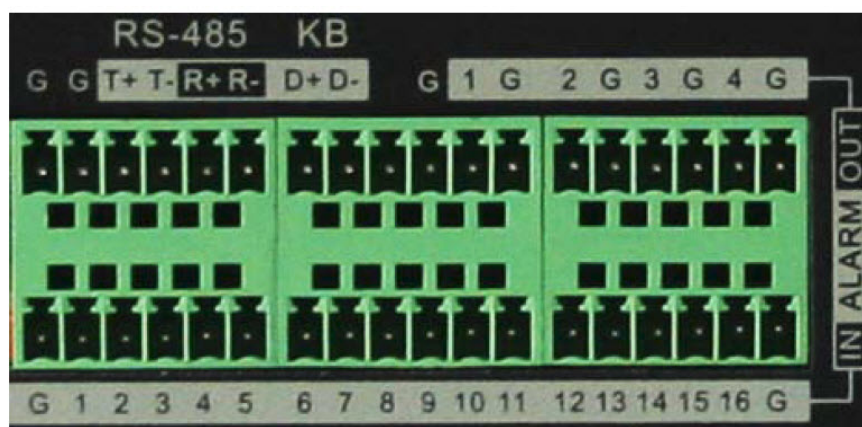
Mode	Continuous, Motion Activated or Schedule Continuous/Motion-Activated (Motion-Activated Recording depends on specific IP Camera Manufacturer models)
<b>Audio</b>	<b>No direct audio inputs are available on the unit. Audio is captured via the IP Camera</b>
Compression standard	Per the IP Camera Manufacturer
Audio Mode	Record Only
<b>Video motion detection</b>	<b>Motion Detection is provided directly at the IP Camera Manufacturer and capabilities vary by Manufacturer</b>
<b>Operation</b>	
Operating system	Linux
Languages	English
Users	3-Levels: Admin, Operator & Guest Multiple Users may be assigned to each level
<b>Network</b>	
Type	10/100/1000 Base-T, RJ-45
Protocol	TCP, IP, UDP, ARP, RARP, PPP, PPPoE, DHCP,SNMP
Others	ADSL modem and PSTN line for alarm video transmission
e-SATA	Future Use
<b>Archive</b>	
Audio and video	USB2.0
<b>Connectors</b>	
RS-232 serial port	RJ-45 (Troubleshooting Only)
RS-485 control port	Future Use
USB	2, USB 2+ (Unit Front)
<b>Alarm handling</b>	
Alarm input	16 programmable NO/NC
Alarm output	Form C alarm relay (4)
<b>Miscellaneous</b>	
Input voltage	100-240VAC, 6.3A, 50-60Hz
Power consumption	20W (with no HDDs)
Operating temperature	0 to +40°C
Relative humidity	10 to 90% (non-condensing)
Dimensions (W x H x D)	17.72" x 17.72" x 3.74" (450mm x 450mm x 95mm), 19" (2U)

Weight	20.44 lbs (9.27kg) with no drives
	21.98 lbs (9.97kg) to 32.79 lbs (14.87kg) with 1 - 16 drives depending on model.
Mounting	Rack mount ears included
<b>Remote Browser requirements</b>	<b>TVN 20 Browser</b>
Intel-based PC	Minimum: Intel E6550 Dual Core class Processor at 2.33 Ghz (4MB Cache) Recommended: Intel Core I5 750 Quad Core class Processor at 2.66 Ghz (8MB Cache)
Memory	Minimum: 1GB RAM Recommended: 4 GB RAM
Operating system	Windows® 2000, Windows® XP, Windows® Vista or Windows® 7
Graphics Card	Minimum: HD Video Card with 256 MB Recommended: HD Video Card with 1 GB
<b>Additional Storage Features</b>	
Hard Drive Groups: Redundant Camera Recording	Any camera can be recorded on multiple hard drives for redundant recording
Hard Drive Groups: Independent Storage Areas	Hard drives can be independently grouped with specific cameras assigned to each group for different storage durations

## Peripheral Connections

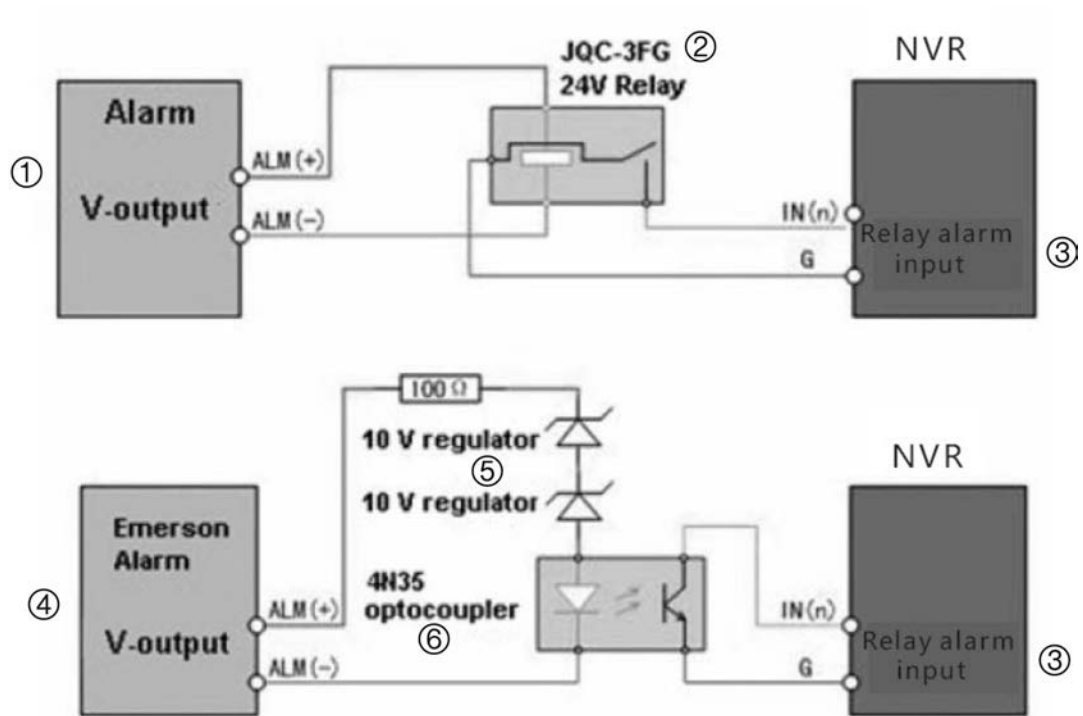
### Connecting to the alarm input and output interface

Figure 36: The alarm input and output interface



The alarm input is an open/close relay. If the input to be connected is not an open/close relay, follow this connection diagram:

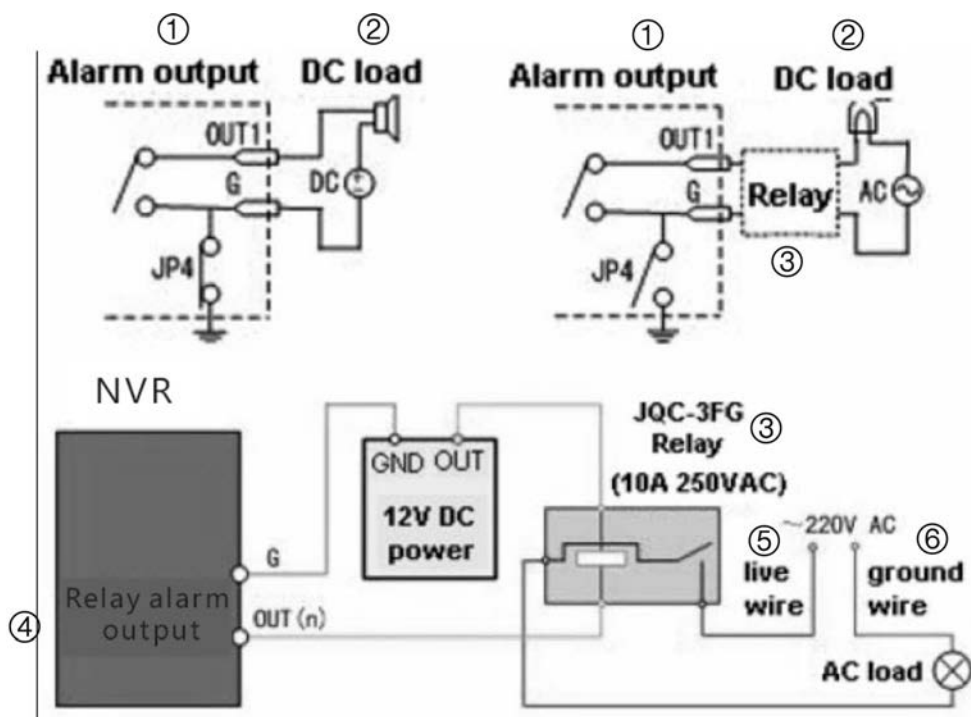




1. Alarm, V output
2. JQC-3FG 24 V relay
3. Relay alarm input

4. Emerson alarm, V output
5. 10 V regulator
6. 4N35 optocoupler

To connect to an AC/DC load, use the following diagram:



- |                 |                       |
|-----------------|-----------------------|
| 1. Alarm output | 4. Relay alarm output |
| 2. DC load      | 5. Live wire          |
| 3. Relay        | 6. Ground wire        |

For a DC load, JP4 can be used within the limit of 12V/1A safely. If the interface is connected to an AC load, JP4 should be left open. Use an external relay for safety (as shown in the figure above).

**Note:** An external relay is needed to prevent electric shock when connecting to an AC load.

### Alarm Connections:

The device provides the green mating plugs for alarm input and alarm output connectors. Perform the following steps for proper connection:

1. Remove the green mating plug from the ALARM IN or ALARM OUT connector.
2. Use a screwdriver to loosen the screw in the plug and then place the wire to the top of screw and finally tighten the screw to secure the wires.
3. Insert the plug to its mating slot.

# Appendix C

## TVN 20 IP Camera Capacities

The figures below are representative of the capabilities of the device and serve as recommended guidelines. In the case of mix configurations of different IP Camera manufacturers it is not possible for Interlogix to confirm all possible combinations and impacts.

**Please visit the following Interlogix internet address for the latest updates of firmware, operating expectations and features:**

[www.utcssecurityproducts.com/CustomerSupport/Pages/VideoSurveillance.aspx](http://www.utcssecurityproducts.com/CustomerSupport/Pages/VideoSurveillance.aspx)

or

<http://www.utcssecurityproductspages.eu/videoupgrades/>

### Resource Calculation Method

The TVN 20 Product Documentation CD contains a storage calculator that allows you to evaluate additional storage capacities using different data rates.

The resource calculation method has changed since earlier versions of the TVR 20. Available resources are no longer calculated by resolution but instead are now calculated by bit rate.

**Table 6:**

Bit rate (stream)	Channel cost on TVN 20
Less than or equal to 2 Mbps	1
2 to 4 Mbps	2
4 to 8 Mbps	4

This means that you can have:

- 16 streams to a 16-channel TVN 20 at less than or equal to 2 Mbps.
- 8 streams to a 16-channel TVN 20 from 2 to 4 Mbps.

- 4 streams to a 16-channel TVN 20 from 4 to 8 Mbps.

## Budgeting Unit Capacity

The maximum data rate supported by the unit regardless if it is an 8 or 16 channel unit is 64Mbps. When populating the TVN 20 it is important to consider:

- Data Rate in Mbps of Cameras being Recorded simultaneously
- Data Rate in Mbps of Cameras being Streamed Live (Preview) simultaneously
- Data Rate in Mbps of Cameras in Playback simultaneously

The sum total of these simultaneous actions must not exceed 64 Mbps. Possible system behaviors in these cases are the following:

- Video may continue to record (as Recording is a priority event with the TVN 20)
- Live viewing will no longer support the number of simultaneous live (preview) camera displays
- Playback may take longer to load than normal
- Live and playback images may experience increased packet loss resulting in a degraded picture

# Appendix D

## TVN 20 Supported IP Cameras

System capabilities of the TVN 20, in many cases, are limited on the basis of the different IP Camera Manufacturers capabilities or the implementation limitations of a specific standard such as ONVIF and PSIA by that manufacturer.

This appendix identifies some of the currently supported IP cameras:

- Continuous Only & Scheduled Recording
- Motion Activated, Continuous & Scheduled Recording

This distinction will have the greatest impact on selection of IP cameras to use with TVN 20 as it has a profound impact on storage expectations for the unit.

A more detailed listing of capabilities at the time of this printing are included as an insert within the box and also as a PDF file on the TVN 20 Product Documentation CD included with your unit.

**Please visit the following Interlogix's internet address for the latest updates of firmware, operating expectations and features:**

[www.utcssecurityproductspages.eu/videoupgrades/](http://www.utcssecurityproductspages.eu/videoupgrades/)

**For Supported IP Cameras with Motion Activated, Continuous & Schedule Recording Please See 1077774 TruVision NVR 20 IP Camera Compatibility Guide on your TVN 20 Documentation CD.**

### List of Current Known User Name and Passwords for Supported IP Cameras

Manufacturer	Default user/password
Interlogix: TVC-MPX	admin/1234

Interlogix: UVE-101	admin/admin
Interlogix: UVC-IP, UVD-IP	admin/admin
Interlogix: UVP-IP	admin/1234
Interlogix: TVE-400, 800, 1600	admin/1234
Interlogix: CamPlus	admin/admin
Interlogix: CamPlus2	admin/123456
ARECONT	admin/admin
AXIS	root/pass
AXIS - ONVIF	root/pass
PANASONIC	admin/12345

## Resolution Table: Guide to System Settings

In several of the resolution and frame rate settings the system may refer to the following references in Pixels or by the common industry name. This chart is here to help you keep these references clear.

Resolution Name	Resolution in Pixels
4CIF	704x576
VGA	640x480
SVGA	800x600
XGA	1024x768
SXGA	1280x1024
UXGA	1600x1200
QXGA	2048x1536

# Appendix E

## TVN 20 USB Archive Options

The TVN 20 has the ability to locally (from the unit itself) archive video to a USB memory stick. This utilizes the USB 2.0 and later style memory drive devices.

The unit will archive as much video as there is space on the device. Video data is archived beginning with the newest video to oldest video based upon the time stamp of the video. The archive function simply copies the selected video to the USB device.

There are two methods available to archive video from the TVN 20 using a USB memory stick plugged into the TVN 20.

1. Local USB Archive via COPY button	All actions are completed locally at the unit without the need of a computer. Video files are automatically copied off newest to oldest. The TVN 20 Archive Player, to allow viewing on a computer, is also copied with the video files.
2. Local USB Archive via Remote BackUp	This process allows a USB memory device to be inserted in the TVN 20 unit, but to have the archive operation controlled by the Browser computer. Additional capabilities include: <ul style="list-style-type: none"><li>• Precise control over which video files are copied</li><li>• Ability to include Archive Player on the USB device in addition to the video files</li></ul>

The Archive Player application (**Player.exe**) is also located on the TVN 20 Product Documentation disk.

## Local USB Archive via COPY Button

Steps to archive off video to a USB memory drive device:

1. Insert USB device into either one of the two USB ports on the front of the TVN 20



2. Press the **COPY** button
3. The **ARCHIVE** LED will begin flashing blue to let you know the archive off function is proceeding
4. When the device is full the **ARCHIVE** LED stops flashing the archive is completed and the device can be removed safely from the device.

\*\*\*\*\* Please do not remove the USB device while the ARCHIVE LED is flashing\*\*\*\*\*

### Troubleshooting Tips

After the device is inserted and the COPY button is pushed, if the ARCHIVE LED does not flash and the TVN 20's local audible triggers the archive off failed. The reason for the failure can be:

1. Incompatible USB device connected or USB device not recognized
2. No device is connected to the USB port



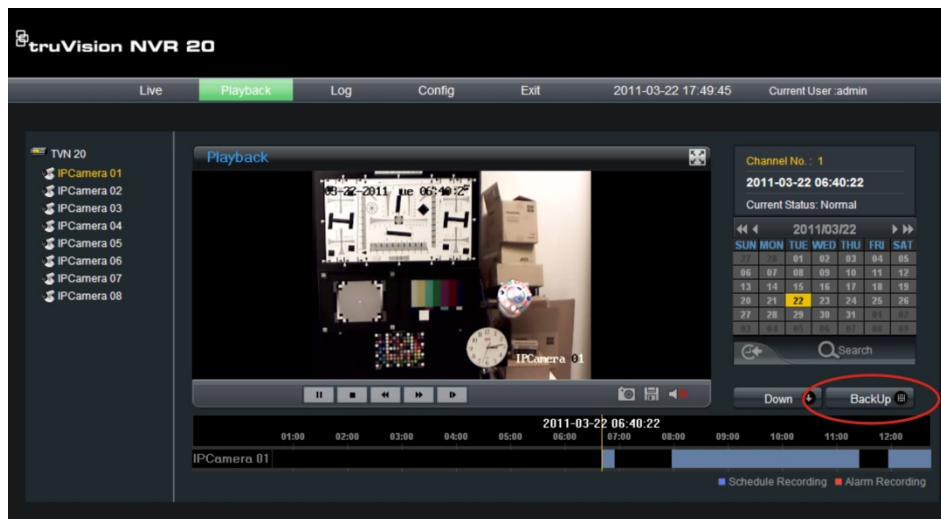
## Local USB Archive via TVN 20 Browser

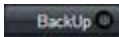
Steps to archive off video to a USB memory drive device:

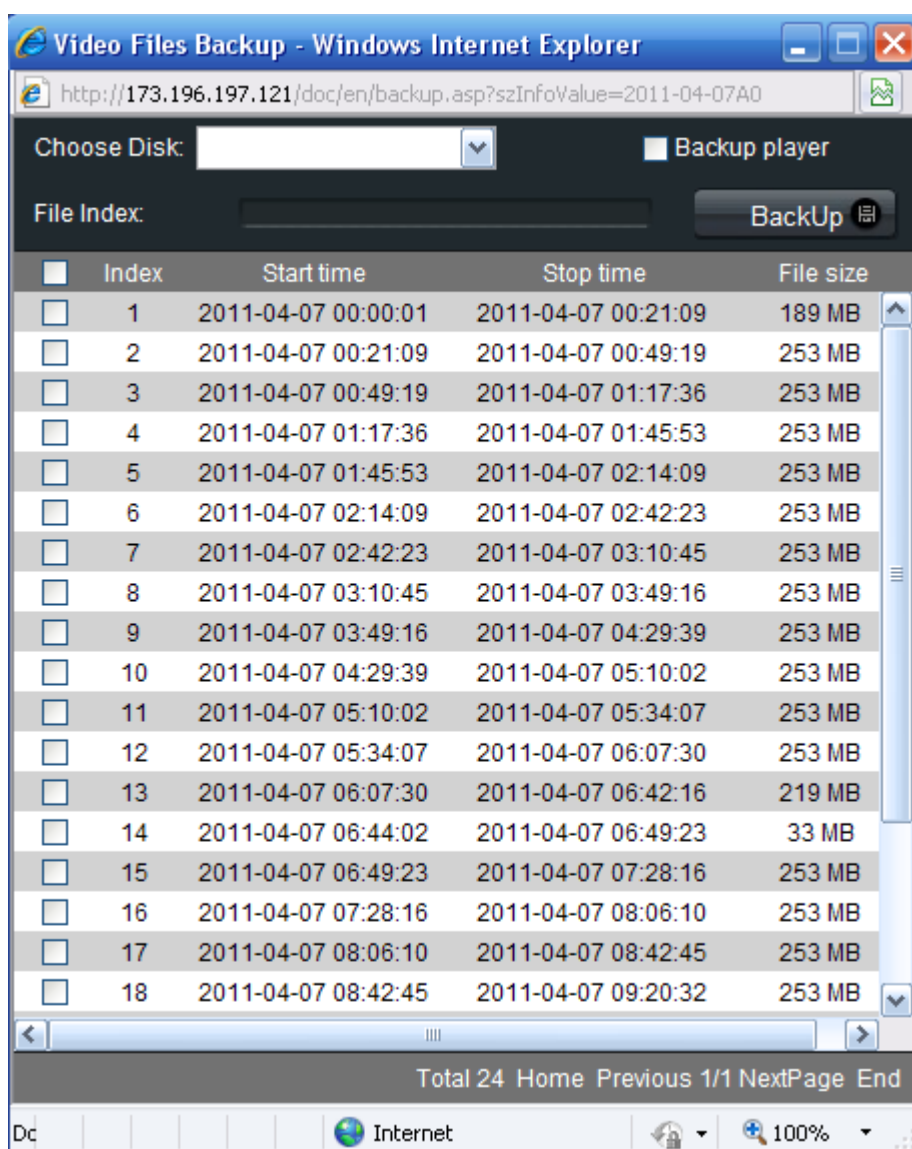
1. Insert USB device into either one of the two USB ports on the front of the TVN 20

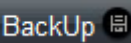


2. Via the TVN 20 Browser go the Playback tab



3. Select the desired **Date** from the calendar of the video you wish to archive
4. Press the **Search** button to narrow the video search for the backup
5. Pause or Stop the Playback
6. Select the **BackUp** button 



7. Select the check boxes corresponding to the dates and times for the video you wish to download. If the video you are seeking is not displayed press the **Previous** / **Next** page indicators at the bottom of the page to locate the page with the desired video.
8. The **Choose Disk** drop-down will show the USB device you inserted into the USB port of the TVN 20 if it was properly recognized. Select this device.
9. If you want to copy the mini-player along with the video files select the **Backup Player** checkbox.
10. Press the **Backup** button  at the top of the window to begin the download. The window will display an active status bar at the top showing the progress of the download.
11. The **ARCHIVE** LED will begin flashing blue on the front panel of the TVN 20 to let you know the archive off function is proceeding

12. When the device is full the **ARCHIVE** LED stops flashing the archive is completed and the device can be removed safely from the device.

\*\*\*\*\* Please do not remove the USB device while the ARCHIVE LED is flashing\*\*\*\*\*

13. A Download is complete message box will appear when the process is completed.

The troubleshooting tips are the same whether the local COPY button is pressed or the Remote browser download is engaged.

### **Player Software**

The video on the USB device can be played using the Player software found on the TVN 20 Product Documentation CD or copied with files during the archive process.

1. Copy the software to your Desktop or Laptop PC.

It is less than 600Kb.




Double-click the Icon to launch the Player.

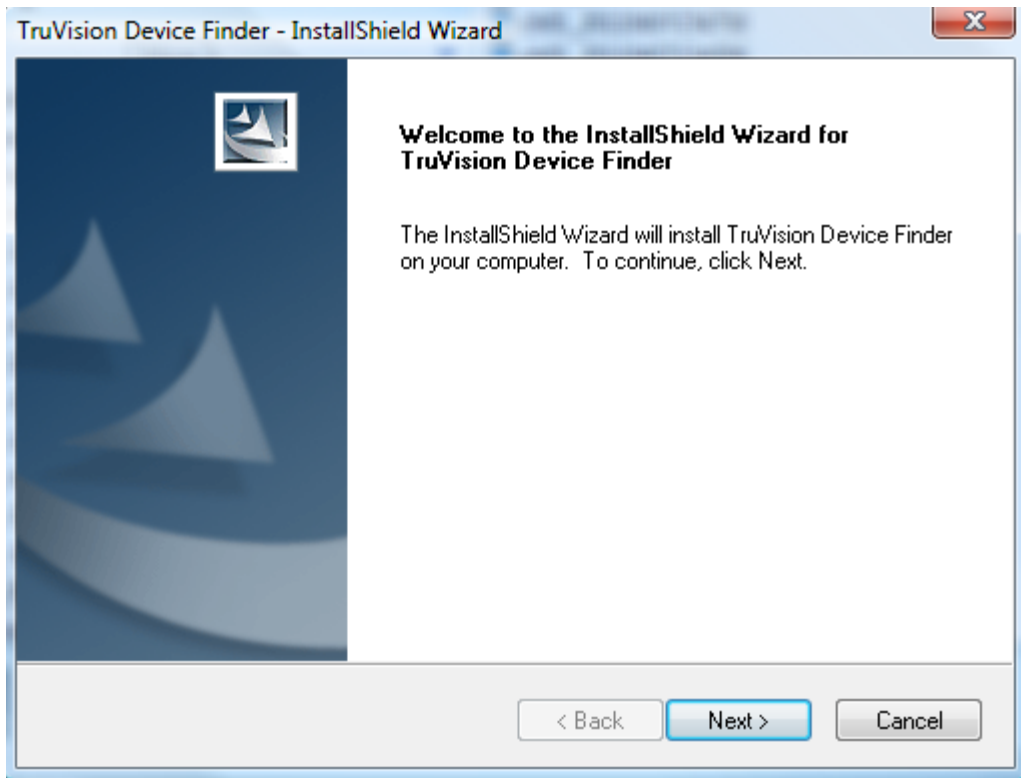
# Appendix F

## TruVision Device Finder

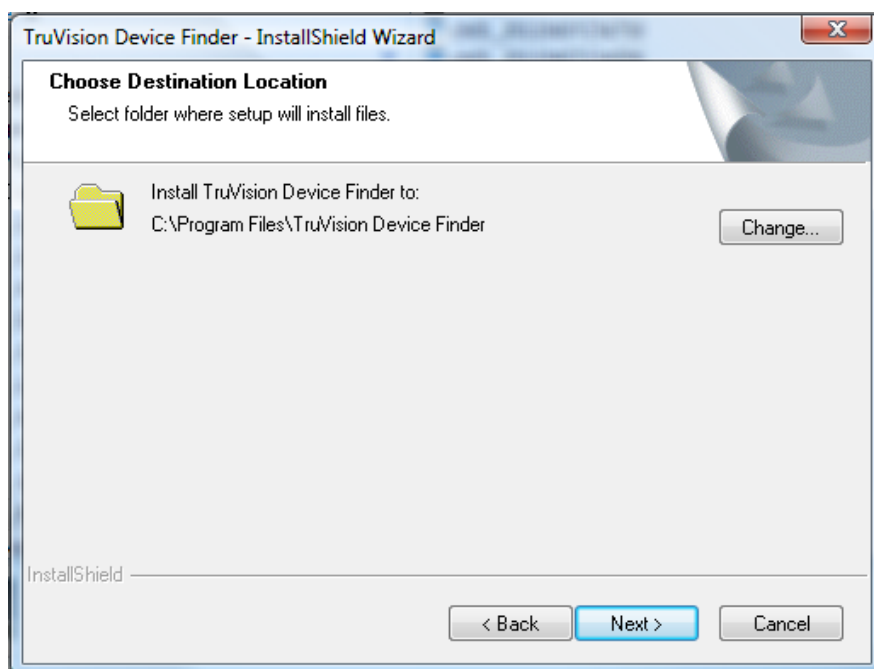
This tool automatically identifies TruVision devices that support “auto-discovery” anywhere on the network even different subnets. The User can view and modify the IP Address of any discovered devices.

### TruVision Device Finder Installation

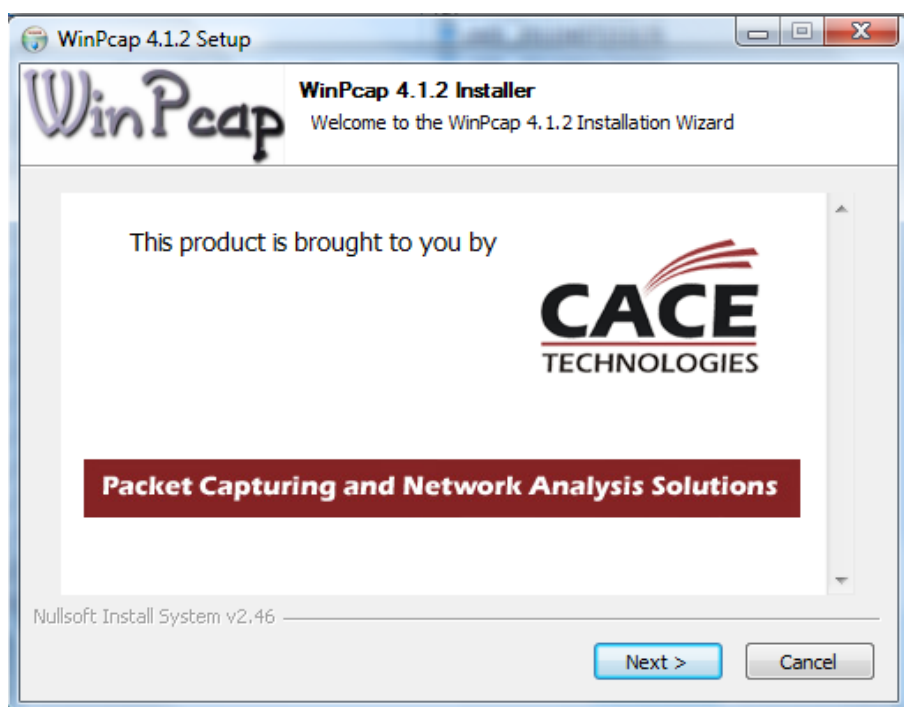
To install the device on your browser computer, insert the TVN 20 Product Documentation in your PC's CD/DVD drive. Browse to the folder IP Discovery Tool and double click the Setup file located in the folder.  Setup



1. Click **Next**.



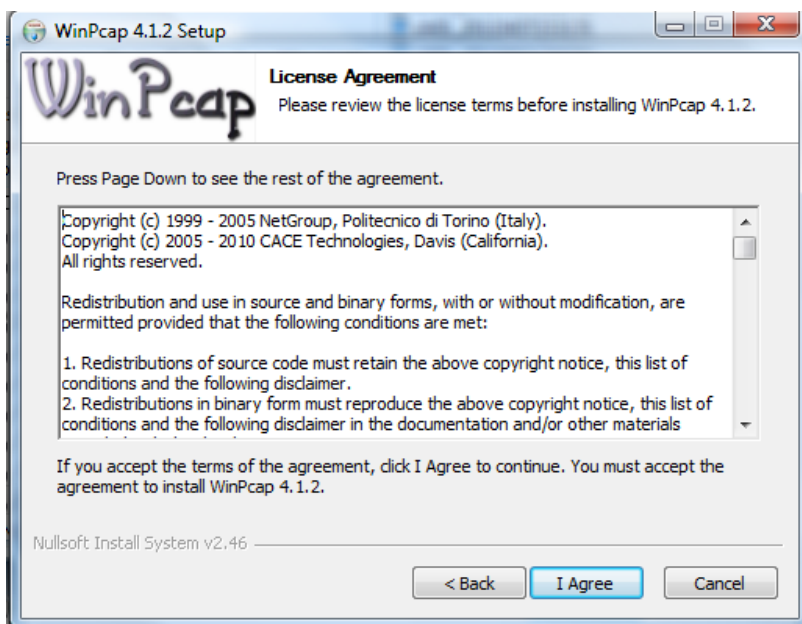
2. Click **Next**.
3. The program requires a utility called WinPcap to be installed on the computer, if it is already installed this installation will not be required and you can skip down to item 6.



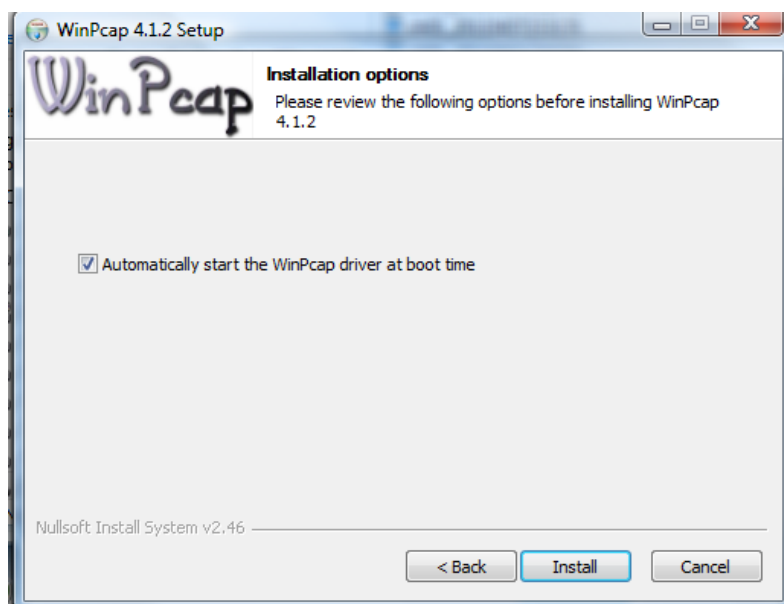
4. Click **Next**.



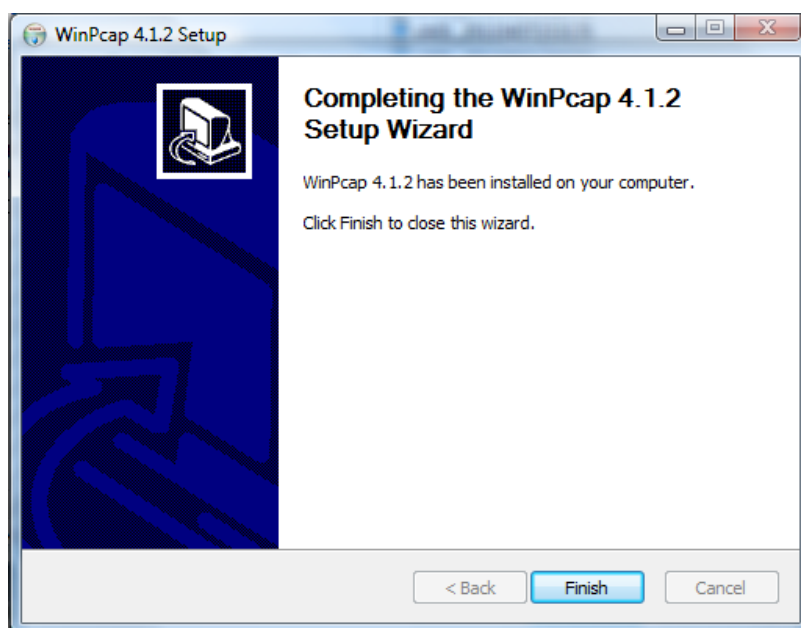
5. Click **Next**.



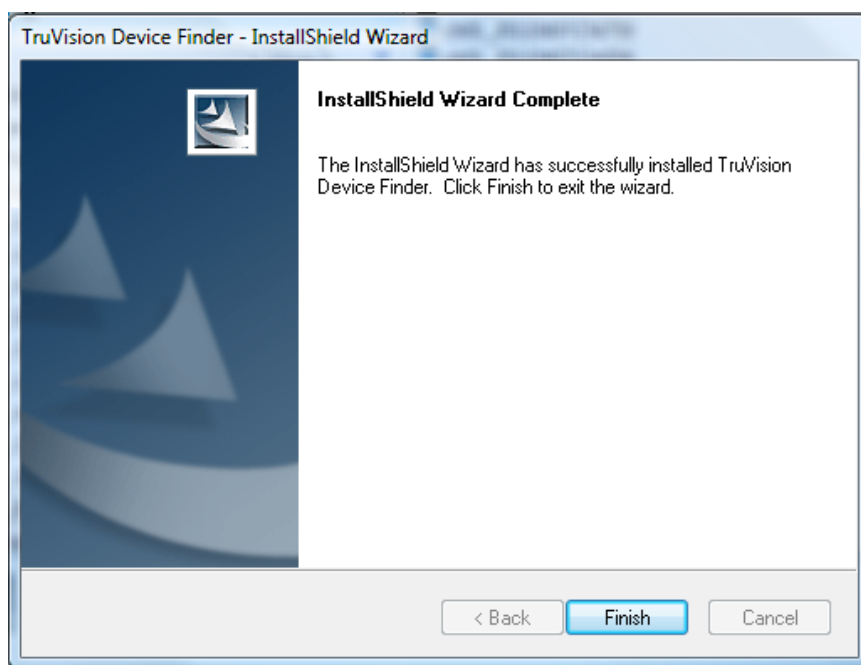
6. Click **I Agree**.



7. Please make sure check box **Automatically start the WinPcap drive at boot time** is enabled and press **Install**.



8. Click **Finish** to close the WinPcap installation.

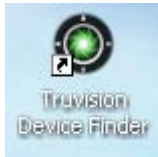


9. The TruVision Device Finder Wizard will display, press **Finish** to complete the installation of the TruVision Device Finder.



## Using the TruVision Device Finder

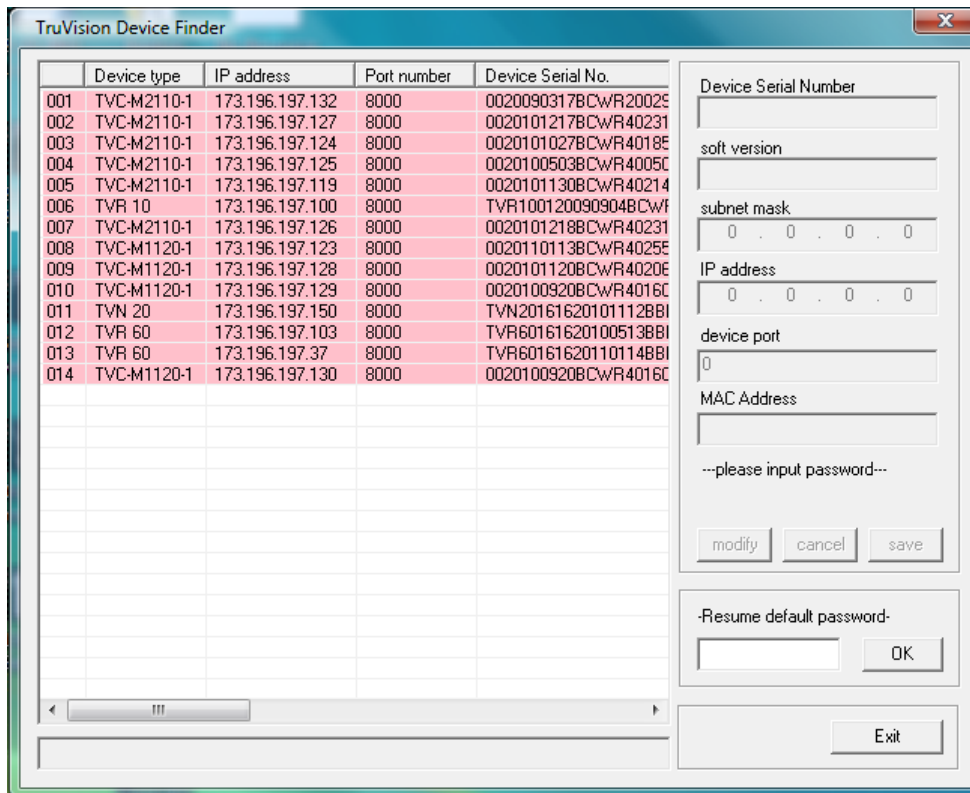
The setup will install the necessary files and place a shortcut on your desktop.



Double click the icon to launch the utility. The following window will display. Press the **Start** button to begin the discovery process. Discovery will only take a few seconds in most cases.



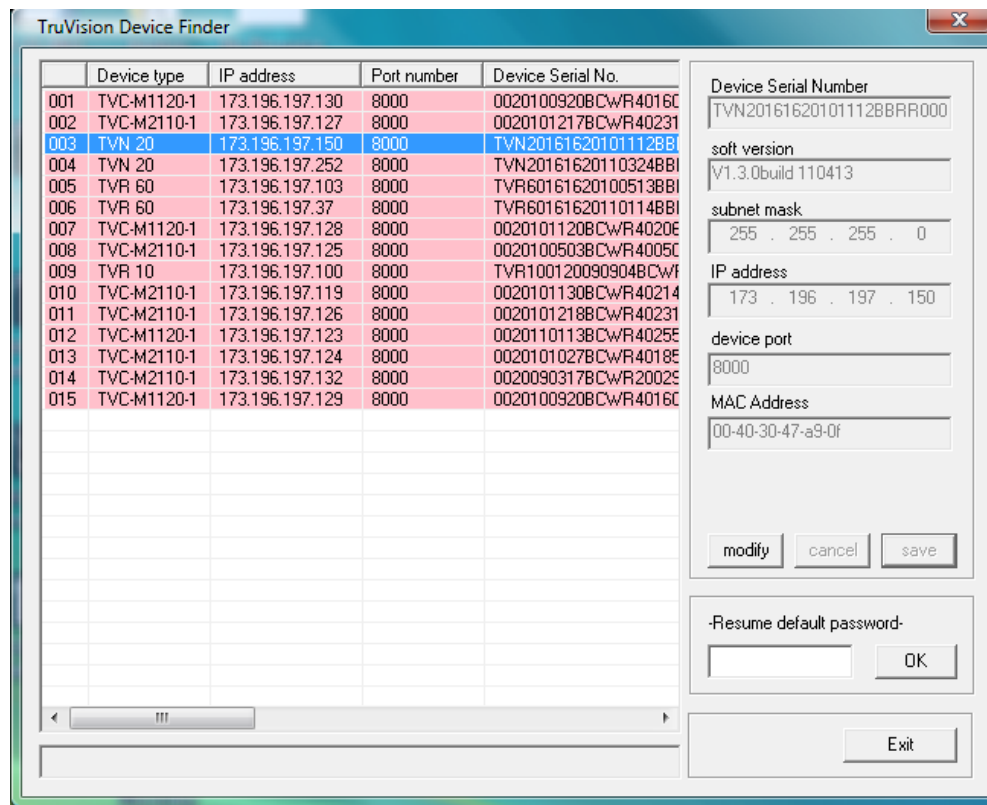
The application will return a listing of “discovered” TruVision devices located on your network.



The tool identifies:

- Device Type
- IP Address
- Connection Port
- Device Serial Number
- Device Subnet Mask
- Device MAC Address
- # of Video Channels supported by the device
- Software Version
- DSP/Firmware Version

To change the IP Address and/or the Subnet Mask of the device, click on the line of the device address you wish to change.



The key device characteristics for that device will be listed on the right. Press **Modify** to change the IP Address.

	Device type	IP address	Port number	Device Serial No.
001	TVC-M1120-1	173.196.197.123	8000	00201101138CwR4025E
002	TVC-M1120-1	173.196.197.128	8000	00201011208CwR4020E
003	TVC-M2110-1	173.196.197.119	8000	00201011308CwR40214
004	TVC-M2110-1	173.196.197.124	8000	00201010278CwR4018E
005	TVN 20	173.196.197.150	8000	TVN201616201011128B
006	TVR 60	173.196.197.103	8000	TVR601616201005138B
007	TVR 60	173.196.197.37	8000	TVR60161620101148B
008	TVC-M2110-1	173.196.197.127	8000	00201012178CwR40231
009	TVC-M2110-1	173.196.197.132	8000	00200903178CwR2002S
010	TVC-M2110-1	173.196.197.125	8000	00201005038CwR4005C
011	TVC-M2110-1	173.196.197.126	8000	00201012188CwR40231
012	TVR 10	173.196.197.100	8000	TVR1001200909048CwR
013	TVC-M1120-1	173.196.197.129	8000	00201009208CwR4016C
014	TVC-M1120-1	173.196.197.130	8000	00201009208CwR4016C

Device Serial Number  
TVN201616201011128BRR000

soft version  
V1.3.0build 110413

subnet mask  
255 . 255 . 255 . 0

IP address  
173 . 196 . 197 . 150

device port  
8000

MAC Address  
00-40-30-47-a9-0f

---please input password---

modify cancel save

-Resume default password-

OK

Exit

The IP Address fields, Device Port address fields will be available to change.

Change/modify the IP address and or subnet mask as required. Under the **---Please Input Password---**, input the device's logon password and press **Save**. Repeat this process for every other device that needs modification. When all changes to all discovered devices is complete, press **Exit** to close the tool.

The TruVision Device Finder will only detect devices that are on the same LAN. It is not able to detect devices placed on a VLAN.

# Appendix G

## Glossary of Terms

Term	Definition
<b>Dual Stream</b>	Dual stream is a technology used to record high resolution video locally while transmitting a lower resolution stream over the network. The two streams are generated by the DVR, with the main stream having a maximum resolution of 4CIF and the sub-stream having a maximum resolution of CIF.
<b>HDD</b>	Acronym for Hard Disk Drive. A storage medium which stores digitally encoded data on platters with magnetic surfaces
<b>DHCP</b>	Dynamic Host Configuration Protocol (DHCP) is a network application protocol used by devices (DHCP clients) to obtain configuration information for operation in an Internet Protocol network
<b>HTTP</b>	Acronym for Hypertext Transfer Protocol. A protocol to transfer hypertext request and information between servers and browsers over a network
<b>PPPoE</b>	PPPoE, Point-to-Point Protocol over Ethernet, is a network protocol for encapsulating Point-to-Point Protocol (PPP) frames inside Ethernet frames. It is used mainly with ADSL services where individual users connect to the ADSL transceiver (modem) over Ethernet and in plain Metro Ethernet network
<b>DDNS</b>	Dynamic DNS is a method, protocol, or network service that provides the capability for a networked device, such as a router or computer system using the Internet Protocol Suite, to notify a domain name server to change, in real time (ad-hoc) the active DNS configuration of its configured hostnames, addresses or other information stored in DNS
<b>NTP</b>	Acronym for Network Time Protocol. A protocol designed to synchronize the clocks of computers over a network.
<b>NTSC</b>	Acronym for National Television System Committee. NTSC is an analog television standard used in such countries as the United States and Japan. Each frame of an NTSC signal contains 525 scan lines at 60Hz
<b>NVR</b>	Acronym for Network Video Recorder. An NVR can be a PC-based or embedded system used for centralized management and storage for IP cameras, IP Domes and other DVRs.
<b>PAL</b>	Acronym for Phase Alternating Line. PAL is also another video standard used in broadcast televisions systems in large parts of the world. PAL signal contains 625 scan lines at 50Hz.

Term	Definition
<b>PTZ</b>	Acronym for Pan, Tilt, Zoom. PTZ cameras are motor driven systems that allow the camera to pan left and right, tilt up and down and zoom in and out
<b>USB</b>	Acronym for Universal Serial Bus. USB is a plug-and-play serial bus standard to interface devices to a host computer.

# Appendix H

## Contacting Support

For help installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided. If you still have questions, contact us during business hours (Monday through Friday, excluding holidays).

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### Technical support

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#### Europe, Middle East, and Africa

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W Select Customer Support at <http://www.utcssecurityproducts.eu/support.htm>

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#### North America

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Should you require technical assistance or support on the TVN 20, please contact your Interlogix reseller. If your questions cannot be answered immediately, your reseller will forward your inquiries to the appropriate Interlogix technical support teams to ensure a rapid response.

Additionally, you can visit our website [www.interlogix.com/customer-support](http://www.interlogix.com/customer-support) for additional information about our products and services.

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#### Australia

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E [security.tech.support@interlogix.com.au](mailto:security.tech.support@interlogix.com.au)

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#### Latin America

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F +1 305.593.4300

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#### China

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E [ts.cn@fs.utc.com](mailto:ts.cn@fs.utc.com)

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